



OAK CREEK CANYON  
DEVELOPED RECREATION SITE  
SUPPLY, DEMAND AND  
CUSTOMER SATISFACTION  
ANALYSIS



## ABSTRACT

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Title: Oak Creek Canyon Developed Recreation Site Supply, Demand and Customer Satisfaction Analysis

Abstract: Oak Creek Canyon is a highly scenic recreation area in northern Arizona. The author studied the developed recreation supply offered in the Canyon to determine if it provided the correct mix of opportunities demanded by recreation visitors.

The paper describes what is currently known about the customers, the supply of developed sites and the demand for various recreation opportunities. The writer reviewed available literature to find answers and techniques to study supply, demand, marketing, customer profile and customer satisfaction.

The paper provides decision makers with the following items:

1. Inventory of developed recreation supply.
2. Recommended techniques for measuring the level of customer satisfaction.
3. Comparisons between supply, demand and customer satisfaction and recommended alternatives to the management of Oak Creek Canyon.
4. Review of available literature, the Coconino National Forest Land Management Plan and the Sedona/Oak Creek Plan as they apply to recreation in Oak Creek Canyon.
5. Implementation Plan for a special study of the Oak Creek Canyon recreation area.
6. Recommendations for changes to facilities and programs in Oak Creek Canyon.

Keywords: Area analysis, capacity (developed), marketing, overcrowding, plan (Rec. Dev.), Rec. use inventory, user characteristics, user demand, user satisfaction,

## EXECUTIVE SUMMARY

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Summary: The intent of this project is to answer the question "Is the current mix of developed recreation opportunity in Oak Creek Canyon correct?" It provides managers with an analysis of acreage allocation for various developed recreation activities and activity categories. The author also reviewed population and customer satisfaction studies to find out what Arizonans and other users want in developed site outdoor recreation in the Oak Creek Canyon recreation area.

The paper provides managers with alternative management schemes and recommendations for changes in facility design. At the time of this report Oak Creek Canyon was involved in an aggressive recreation facility construction program.

The project was approached with the following basic assumptions:

1. Land available for developed recreation sites is very limited in Oak Creek Canyon.
2. Future expansions will be severely limited by environmental effects.
3. The recreation setting is what we manage. The supply portion of this project is centered around the setting and an inventory of that setting and how it is allocated to various recreation opportunities and activities.
4. Recreation employees on Sedona Ranger District have been keeping data on demand and customer satisfaction for years. The report used that data.
5. Recreation opportunity in the canyon is directly related to supply of parking space for passenger cars and trucks. A detailed inventory of parking spaces is an important component of this project.

The project was researched by inventorying the developed recreation supply, studying customer demand and satisfaction, and reviewing available literature on marketing, recreation demand, G.I.S., and land management planning.

The study found that developed recreation facilities are used mostly by Anglos but Manzanita Campground, Cave Spring Campground and Encinoso Picnic area receive substantial Hispanic use with 20%, 32% and 16% respectively. Studies indicate Hispanics want multiple family sites, visitor information service activities, playgrounds and bilingual signs.

The vast majority of campers prefer tent camping in Oak Creek Canyon (78% average). It appears that the District needs to improve facilities to accommodate tent campers (provide tent pads and lantern hangers).



Arizonans are the heaviest users by far in Oak Creek Canyon. They account for an average of 59%, Californians 19% and other users average 22% in our three largest campgrounds. The "1992 Arizona Outdoor Needs Survey--Final Report" from the statewide comprehensive outdoor recreation report can therefore be used to determine the things Arizonans most want in Oak Creek Canyon. The Arizona residents surveyed were asked which of 42 outdoor activities they liked most. The top five individual activities were: (in order) visiting outstanding scenic areas, visiting historic places, visiting zoo/botanical gardens, picnicking and walking. Managers need to emphasize picnic areas, scenic vistas, historic sites and walking for pleasure in future facility improvements in the canyon. Tent camping and fishing in a natural setting rated high in S.C.O.R.P. and needs to be brought forward in future facility planning.

Forty two percent of our campers stay two days or more. They will be looking for something to do. We need to provide interpretive trails, hiking trails, nature programs and playgrounds for them so they enjoy themselves and stay put instead of adding to canyon traffic congestion. An Oak Creek Canyon trail needs to be developed. The number one thing campers are asking for is showers. Managers need to strive to provide this amenity or get private enterprise to do so.

The study found severe shortages in the supply of facilities for high demand activities such as picnic areas, trailheads, bicycle paths, walking for pleasure and historic sites. The writer found that the agency does a very good job in providing for driving for pleasure, camping, swimming and scenic viewing activities. Roadside parking along US 89A was measured and will accommodate 1026 vehicles in 106 parking areas. Forest Service employees need to discourage future expansion of roadside parking.

The highway takes up the largest portion of the developed site acreage in Oak Creek Canyon with forty percent. Camping takes up the next highest with thirty seven percent followed by swimming with nine percent, scenic with eight percent with roadside parking, picnicking and trailheads with just 3, 2 and 1 percent respectively. The study area includes a total of 9983 acres with only 907 acres or 9 percent with 15 percent or less slope. This land is already 40 percent developed and approximately 31 percent floodplain which leaves only 29 percent or 249 acres undeveloped. Much of this land may be inaccessible or is needed for "open space".

The Sedona Ranger District needs to implement an aggressive "customer satisfaction" program. This program includes the completion of the S.E. Experiment Station's "customer" report, the implementation of a "customer report card" survey at developed sites and a survey of Highway 89A users.

The author found that the Coconino LMP and the Sedona Oak Creek Plan provide good general direction for the management of the Oak Creek Canyon recreation area. The problem is they have only partially been implemented in Oak Creek Canyon. The standards and guidelines for the LMP need to mention the importance of S.C.O.R.P. and Oak Creek's place in providing for the recreation demands of Arizonans. The plan needs to emphasize the development or altering of facilities to satisfy the top five activities with the greatest unmet demand which includes picnicking, visiting historic places, tent camping and visiting outstanding scenic areas. The "Plan" needs to put more emphasis on trails and trailheads in Oak Creek Canyon.



# **OAK CREEK CANYON DEVELOPED RECREATION SITE SUPPLY, DEMAND AND CUSTOMER SATISFACTION ANALYSIS**

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# INTRODUCTION

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Oak Creek Canyon is a highly scenic Recreation Area in Northern Arizona. The canyon receives over five million visits per year largely due to the location of a major highway which runs most of its length. The current mix of developed recreation opportunities includes five campgrounds, three picnic grounds, two developed swim areas, ten Forest Service System Trails, seven motel/resorts, one summer camp and one public trout farm. Numerous parking pullouts also exist along the twelve mile length of the canyon.

Forest Service developed sites in the canyon were all built in the 1930's, 50's and 60's. The sites are still being managed according to their original purpose i.e. camping, picnicking, swimming and scenery.

The District Ranger, Forest Supervisor and the Recreation Staff need to know if the current mix of developed recreation opportunities in the canyon is adequate. Are we allocating too much of our developed acreage to camping? Are there other recreation opportunities that we should be providing? Are we providing too much of this and too little of that? Forest Service managers need to stand back from a distance and describe exactly what we are giving to recreationists in Oak Creek Canyon. We should also look at what our other recreation partners are providing on private and state land.

Are we providing customer satisfaction? Is there something we could do to improve their enjoyment of this precious resource? Managers need to know if any adjustments or new alternative management schemes are needed to be proactive to public wants and needs relative to recreation supply and demand.

This paper will describe what we currently know about the customers, the supply of developed sites, and the demand for various recreation opportunities. I will review available literature to find answers and techniques to study supply, demand, customer profile, and customer satisfaction. Alternative solutions will be offered and an implementation schedule for the preparation of a new recreation study and plan for Oak Creek Canyon. Ecological considerations should be an integral part of the management plan for the area.



## OBJECTIVES

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- Inventory the developed recreation supply.
- Determine level of customer satisfaction.
- Review the "Coconino National Forest Land Management Plan". Describe the relationship between this report and the plan.
- Discuss comparisons between supply, demand and customer satisfaction and recommend adjustments and alternatives to the management of recreation in Oak Creek Canyon.
- Review available literature that relates to the subjects listed above.
- Complete an Implementation Plan for a special area study of the Oak Creek Canyon Recreation Area.
- Recommend a new Recreation Management Plan for the area.

## METHODOLOGY

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### BASIC ASSUMPTIONS

The following basic assumptions were made:

- ✓ Land available for developed recreation sites is very limited in Oak Creek Canyon. This is especially true when you realize development means environmental and social effects due to mechanical disturbance and construction.
- ✓ Only certain types of land can accommodate recreation development.



- ✓ The recreation setting is what we manage. The recreationist participates in an activity and the product is the experience. The supply portion of this project is centered around the setting and an inventory of that setting and how it is allocated to various recreation opportunities and activities.
- ✓ It is unlikely that a significant amount of undeveloped land will be converted to developed recreation sites in the future in Oak Creek Canyon. Some opportunity for development does exist, however developed sites currently in use will have to supply most of Oak Creek's portion of future recreation demand, whatever that is.
- ✓ Recreation Managers on Sedona Ranger District have been keeping data on demand and customer satisfaction for years. We have also been close to the customer on a daily basis. Many demands have been met as a result of communicating with the customer. We realize that staying close to the customer is very important. Total dependence on mechanical surveys is not good. Standing in the shoes of the customer is probably a more reliable method anyway./1
- ✓ Recreation opportunities in Oak Creek Canyon are directly related to the supply of parking spaces for passenger cars and trucks. This will continue to be the case until "mass transit" becomes available and is used in the Canyon. A detailed inventory of parking spaces is an important component of this project.

## RESEARCH METHODS ---

### DEVELOPED RECREATION SUPPLY

- ◆ Inventory and display acreage allocated to developed sites in Oak Creek Canyon. Developed sites were measured on the ground and with the use of 1:6,000 aerial photography.



- ◆ Inventory and display US 89A Highway Parking supply. Parking spaces were measured on the ground with a measuring "wheel" and located on aerial photographs. A map was prepared to display their location.
- ◆ Inventory private and state leisure developments in Oak Creek Canyon. Resort cabins, motels and other private developments were inventoried.
- ◆ Inventory acreage by recreation opportunity class. The G.I.S. system was used to prepare an R.O.S. Map for this project.
- ◆ Inventory and display total acreage less than ten percent slope by ownership. A map was prepared using the G.I.S. to determine developable land in Oak Creek Canyon.
- ◆ Describe current supply targets offered to recreationists in Oak Creek Canyon. Fiscal year '93 targets were reviewed and displayed to show the actual supply offered to the public.
- ◆ Recommend further supply inventories and methods. Available data were reviewed and recommendations made for future data collection.
- ◆ Describe data currently available from G.I.S. I interviewed the G.I.S. specialist on the Coconino to find out what is currently available on G.I.S.

## **CUSTOMER DEMAND AND SATISFACTION**

- ◆ Illustrate demand in number of visits and recreation visitor days for developed sites. R.I.M data were tracked from 1969 to the present. The data were then plotted by activity type to illustrate how demand has changed over the years.
- ◆ Show other demand trends such as fee collections and highway use. A review was conducted of past years fee collections and traffic counts to show overall demand.



- ◆ Continue to work with the University of Georgia to complete the "Customer" survey conducted in Oak Creek Canyon in the spring and summer of '92.
- ◆ Recommend a method for surveying customers on US 89A.
- ◆ Suggest a follow-up survey to "Customer" to monitor changes in future "customer satisfaction".
- ◆ Review the Arizona and California Comprehensive Outdoor Recreation Plans and compare the demand needs shown in S.C.O.R.P. to the supply offered in Oak Creek Canyon.

## LITERATURE REVIEW ---

### MARKETING LITERATURE

#### National Recreation Strategy

The authors of the National Recreation Strategy for America's Great Outdoors challenge us to discover ways to help the National Forests achieve their full potential and to create more high quality outdoor recreation. We as managers need to respond to the changing needs of customers./2

We need to challenge current partners and new cooperators and partners to offer recreation services, stimulate rural tourism and improve recreation economics. We need to demonstrate to the American People that we are integrating all of the Forest Service skills and energies to research customer needs and preferences. The recreation strategy calls for sharing new technology, providing better recreation opportunities and to strengthen and "round out" the management of multiple use on the National Forests./2

## **Internal Barriers to Marketing**

Marketing is a confusing and misinterpreted term. Most Forest Service Employees look at it as the idea of selling something to people and attracting them to the National Forest Which they consider overburdened. This is a problem to them instead of an opportunity—much less something to get excited over. We often ask ourselves where are the dollars to mitigate the effects of attracting more people to the National Forests./1

Many Forest Service people think marketing is selling, promoting or advertising. Recreation marketing is actually the business of satisfying customers and needs to be understood throughout the organization as customer satisfaction. Conversations with employees often do reveal that recreation is a “necessary evil” that we have to put up with in order to do the other more important jobs of a working forest./1

Actually quality recreation is something of very high value to the customers. National Forest Recreation Opportunities are of high value to the disabled, the disadvantaged and 80 percent of our population who are becoming isolated in an urban environment. Recreation can change lives for the better every day./1

Recreation and customer satisfaction are obviously important to some Forest Service Land Managers. One way to understand customer satisfaction is to use mechanical surveys. Total dependence on mechanical surveys is not good. Standing in the shoes of the customer is very likely a more reliable method. Working weekends, holidays and evening hours is one way for managers to stand in the shoes of the customer. Workers and volunteers interviewed by Dick Spray during his “Internal Barriers to Marketing” Survey thought that their supervisors and higher management should be more aware of the problems and opportunities they encountered during these times./1

## **Marketing Opportunities**

The Forest Service has not developed an overall marketing program for recreation. That could be a problem for a service that has gone from a luxury product to something that is as important or even more important to people than their work. Recreation is now extremely important to our lifestyle and more and more people are using it as a way of identification.

The demand from recreation opportunities for people in early middle age



(35-44 and 45-54) will increase substantially in the next few years. Early retirement, increasing total population and increasing real income are other important factors which will affect recreation demand./4

The demand for high risk activities are expected to grow and along with new ingenious techniques to meet the changing needs of the outdoor recreation user.

Another serious problem is overuse and underuse of some areas and facilities. Other factors affecting recreation demand include climate, season, type of facility, recreation variety and distance from urban areas./3

The Forest Service has difficulty matching supply to demand. We have extreme problems with overuse of some areas while others get very little use. The inability to set and vary user fees along with inadequate budgets to provide larger facilities or new ones makes it tough to shape demand and supply so we can obtain a better balance./3

The Forest Service needs to recognize that more can be done in our current framework to attract more visitors during non-peak periods and divert visitors from over crowded areas and facilities to less used ones. The demand for services changes considerably by season, by day of the week, and by hour of the day./3

The Sedona Ranger District has done many of the things recommended by marketing experts to change our capacity to meet demand such as:

- 1) the hiring of part time employees,
- 2) peak efficiency routines so employees perform only essential work during peak periods,
- 3) do repair and maintenance during non-peak times,
- 4) employees do multiple jobs so they can switch back and forth,
- 5) employees take vacations during non peak-times.

The approach of altering demand to more closely match capacity has not been used extensively in Oak Creek Canyon. Demand altering includes:

- 1) differential pricing or reducing price during non-peak times and increasing price during peak periods,
- 2) advertisement and promotion to "demarket" peak periods and emphasize the good attributes available during non-peak periods,
- 3) provide complimentary service during peak times at less used campgrounds on other Ranger Districts to attract people away from over used sites, and
- 4) provide alternative services while they are waiting.

Demand can also be managed by requiring reservations during peak periods.

User surveys are important to compare the customers needs with the service being offered and to define ways to provide high quality services. Public recreation is a service product and private sector marketing concepts can be used in the public sector if the inherent character of the agency is considered./3

## **DEMAND LITERATURE**

### **Cultural Diversity**

Large numbers of Hispanic groups and individuals use the recreation sites, in Oak Creek Canyon, particularly the campgrounds. According to the latest available data 32 % of the visitors at Cave Springs Campground and 20% at Manzanita Campground are hispanic. Mexican Americans favor more closely spaced campsites so they can be near other campers. They also consider campground design features such as toilets, camping space, water and fire-rings a higher priority than do non-hispanic campers. Hispanics come to recreation areas in larger groups and they are more tolerant to crowding./5

Hispanics bring their families, extended families, groups of adults and children with their compadres to Oak Creek Canyon Recreation Sites. Past research has shown enough difference in recreational participation preferences and social patterns to indicate that racial/ethnic background should be considered in park and recreational planning./5

The non-anglo portion of the population is increasing in the United States and in Arizona. By 2025, one in three people in the United States will be a non-anglo minority. The hispanic population grew 53.1%, compared to 9.8% in the rest of the U.S. population, between 1980 and 1990. In the next decade Hispanics will be the largest minority group in the U.S. Most of the hispanics in the U.S. are of Mexican origin and two thirds live in California, Texas, Arizona, New Mexico and Colorado./10

Recreation sites around the country show different use trends by Hispanics. In one study area on the Angeles National Forest, 87% of the visitors were of hispanic origin. At a Lincoln National Forest study site 63% of the recreation users were Mexican American./10

Group size differs among hispanics in various parts of the U.S. In Chicago



parks anglo groups averaged 2.5 persons and Mexican Americans 5.7. At one Lincoln NF campground anglos averaged 6.9 in a group while Mexican Americans averaged 12.8. Hispanics exceeded campsite capacity at that area by 30%.<sup>10</sup>

Group composition varies widely among cultures. Hispanics often visit as multi-generational families. Anglos and blacks usually visit as individuals or with single generation peer groups. On the Lincoln NF one study found that 48% of the anglos had no children present while only 9.8% of the Mexican Americans had no children with them.<sup>10</sup>

Hispanics are very interested in interpretive services. On the Angeles NF immigrant Mexicans and Central Americans rated insufficient information as a greater problem than anglos. Hispanic visitors use interpretive services more than anglos during their visits.<sup>10</sup> Evening programs in Oak Creek Canyon are very popular with hispanics.

Management issues include group/party size regulations, extended family implications, language issues, and intercultural communication. The enforcement of group size regulations is difficult with hispanics. Regulations may need to be adjusted to reflect what is actually occurring in the field and to change unenforceable regulations. The recreational settings need to be made to appeal to both young and old, active and inactive, and english and spanish speakers. In the multi-generation group setting demanded by hispanics, planning and design should offer something to everyone in the group.<sup>10</sup>

Barriers to intercultural communication must be eliminated. These barriers include:

- 1) ethnocentrism ("we" are superior "they" are inferior);
- 2) misinterpretations of verbal language;
- 3) misinterpretation of nonverbal language;
- 4) lack of open-mindedness and empathy;
- 5) high anxiety during intercultural contacts; and
- 6) unwillingness to engage in "adaptive behavior" (showing respect for cultural differences). Some ways to gain an understanding of cultural diversity include, field observations, focus group discussions, and research literature.<sup>10</sup>

## Demand Literature

All of the developed recreation sites in Oak Creek Canyon are located along Oak Creek with recreation taking place in three distinct periods (spring, summer and fall.) The heaviest use is Memorial thru Labor Day Weekend. The Spring and fall are also definite use periods. Family Campgrounds are filled every night during the heavy use period. During the spring and fall campgrounds are filled on weekends./6

Use has fluctuated from year to year based on the weather and the economy. We estimate that nearly seven million visitors a year come to the Sedona and Oak Creek Area. A large number of these visitors do not camp in Forest Service Campgrounds. They stay in local resorts and motels, come on bus tours or on Sunday excursions. Some people make a stop on the way to the Grand Canyon or some other vacation point./6

In 1992 the Arizona Outdoor Recreation Coordinating Commission and the Arizona State Parks Board hired Arizona State University to prepare "The 1992 Arizona Outdoor Recreation Needs Survey." The survey was designed to evaluate the outdoor recreation demand of Arizona Residents as an initial step in preparing the 1994 Arizona Statewide Comprehensive Outdoor Recreation Plan./7

The Parks Board wanted to evaluate recreation demand by Arizona Residents. They needed to know overall demand, latent demand and funding priorities. The study included 1236 completed telephone interviews and 683 completed mail surveys. The survey sampled a statistical cross-section of the state's population and had a 95 percent confidence level./7

Some of the significant resident telephone survey findings are as follows:

- 1) Arizona residents are similar to California residents in the importance of outdoor recreation to their lifestyles.
- 2) 94 percent of the Arizona residents surveyed indicated that parks and recreation areas were important to their everyday lifestyles.
- 3) The respondents reported a 97.7 percent satisfaction level with federal recreation opportunities. This was higher than the satisfaction level for state and local facilities.
- 4) Developed forest areas were among the recreation areas that were preferred most by Arizona residents



The most significant resident mail survey findings were as follows:

- 1) The Arizona residents surveyed were asked which of 42 outdoor activities they liked most. The top five individual activities were (in order) visiting outstanding scenic areas, visiting historic places, visiting zoo/botanical gardens, picnicking and walking./7
- 2) The activity category that received the highest marks was — “Attending and Visiting Activities”. This category includes picnicking, using a park playground, attending outdoor sports events, visiting historical places, visiting archaeological sites, and visiting outstanding scenic areas.
- 3) Residents expressed the least interest in motorcycle or ATV driving, snowmobiling and rock climbing.
- 4) The activity with the greatest latent (unmet) demand of the 42 recreation activities was for opportunities to fish in natural settings.
- 5) The next four activities with the most unmet demand were picnicking, visiting historic places, tent camping and visiting outstanding scenic areas.
- 6) Their most common barrier to participation in outdoor recreation activities was “Not enough time”. The other major barriers were “Recreation areas too far away”, “Don’t know where to go”, “Too crowded”, and “Too expensive”.
- 7) Arizona residents indicated their highest funding priorities for recreation were for historical places, fishing in natural settings, visiting archaeological sites, visiting outstanding scenic areas and picnicking.
- 8) Residents want better information about outdoor recreation opportunities.
- 9) Environmental education was considered to be an extremely vital activity to Arizona residents.
- 10) This is a very interesting point—Residents feel that developments such as campsites, interpretive facilities, restrooms and drinking water are appropriate in natural area parks.
- 11) Arizonans supported trails near back-country areas but they were more interested in walking for pleasure than in hiking./7

Some of the most recent information available on visitors to Sedona and Oak Creek Canyon is the "1990 Sedona Tourist Intercept Study" conducted in May and August 1990, in conjunction with the "Sedona Community Plan". The results of the study are as follows:

- Thirty percent of all visitors to Sedona were from Arizona and seventy percent were from out of state, indicating that Sedona is a national destination;
- 85% of all visitors arrived by car;
- Two of every three visitors came to Sedona for "sight-seeing/red rocks/Oak Creek" and about 37% came to "visit art galleries or craft stores" and approximately 28% visited for "recreation".
- Average expenditure for all parties was \$235; The average party size was 2.7 persons for overnight visitors and 3.04 persons for day visitors;
- One third of repeat visitors usually spend one night in Sedona and approximately 26% stay two nights or more;
- The peak visitation season is May to August, which are traditional family vacation months. Year round visitation is steady and the survey indicated that repeat visitors would visit Sedona during all months of the year./11

The "1990 Tourist Intercept Study" indicates that most visitors arrive by car and stay one or two days. Sedona is also a trip destination for visitors from the Phoenix Metropolitan Area.

The authors of the study found that most visitors came to experience the natural beauty, visit art galleries and shop. The majority of first-time visitors said that they would visit again in the future./11

Sedona will continue to be one of the fastest growing areas of the state over the next 20 years. By the year 2010 the population of Sedona will increase 86% compared to a 57% increase in the population of Arizona, a 49% increase for Coconino County, and a 66% increase for Yavapai County./12

Traffic volumes on State Route 179, a major road leading to Oak Creek Canyon are, forecasted to increase from 36 to 138 percent by the year 2011. Traffic congestion and delays to motorists will increase. The Sedona-Oak Creek Area continues to get a tremendous amount of publicity, attracting more and more national and international visitors./12



## **TREND LITERATURE**

There have been some major changes in the demographics of our recreation users in America during the past few years. There are more minorities, the population is getting older, and there is a greater percentage of the population with disabilities. Our society has also changed. People want more control over their lives. They want to participate in life not watch it from afar but they do not want to be unwittingly jeopardized./8

There has been an overall decrease in the amount of leisure time that Americans have. Americans are also recreating closer to home. More people are using weekends for major vacations than the traditional two week vacation of the '50s and '60s. Also, as the population ages they tend to stay closer to home than the younger folks./8

In 1973 the median number of hours per week Americans spent at work was 40.6 hours by 1987 the time spent at work had increased to 46.8 hours per week. The time spent per week recreating had decreased from 26.2 hours per week in 1973 to 16.6 hours per week in 1987./8

In 1960 39.4 percent of the population took vacations over five days in length. By 1985 only 8.2 percent of the population took vacations over five days. Most of the trips taken in 1985 were less than one day in length (79.3 percent) while only 45.9 percent of the trips taken in 1960 were one day or less in length./8

The number of Americans with disabilities is increasing. The Americans with Disabilities Act cites that there are 43 million Americans with disabilities. It is estimated that 19.2 million people cannot walk more than one-quarter mile and that 18.2 million Americans cannot carry something as heavy as a bag full of groceries. Many people in this country cannot go up a flight of stairs unassisted (18.1 million) and 12.8 million folks are estimated to be seeing impaired even with eyeglasses. /9

We need to increase accessibility for people with disabilities. Everyone may be considered in some way at some time to have a disability.

## **GEOGRAPHIC INFORMATION SYSTEMS LITERATURE**

The Colonial National Historical Park is an example of a G.I.S. application. The Colonial National Historical Park is a 9,324 acre park along the James and York Rivers and is composed of Jamestown Island, Yorktown Battlefield, the

Colonial Parkway, Green Springs and Swann's Point. The Park is a "World Class Site". Over the past three years park managers have been developing a park based PC-DOS Geographic Information System (GIS) with North Carolina State University's GIS Research Program. They have digitized numerous themes in the Park all of which would be useful in Oak Creek Canyon. The themes are as follows:

Forest Cover	Road Systems & Mile Markers
Fields	Ownership (NF Boundary)
Wetlands	Fee Sites
Roads	Easements
Streams	Fire Mgt. Units
Archy Base Map	Rare, T & E. Species
Historical Sites	Floodplains
Utility R.O.W.s	Trails
Ponds	Soil Survey

The first step in establishing a GIS System is to develop a GIS Management Plan. The Plan will give direction for program development, set priorities, provide understanding of the true cost of GIS and establish methods to gain support for the program./13

Colonial National Historical Park found the use of a University Cooperator was critical to the success of their GIS Program. The University cooperator helped to greatly enhance park staffing and speed the development and implementation of GIS. They found that developing a GIS system is time consuming and costly, but the benefits are great, allowing for responsive and improved park planning, environmental assessment, historical research, inventory and monitoring and emergency response./13

The Park found many sources available for GIS including USGS, EROS, SCS, EPA, State and Local Government, and Universities. They found that "ground truthing" the interpretive data was very important and that it was critical to move the digitizer or scanner around to be near the subject specialist./13

GIS or any other system such as CAD (Computer Aided Design Systems) must include procedures for the input, storage, retrieval, analysis and output of geographic information. The value of such systems depends on their ability to provide timely and useful information. The CAD system is merely a graphic



system but a surprising amount of digital cartography is just electronic drafting.

The CAD System offers great improvements over photo-mechanical methods of map production but it has severe limitations when it comes to analytical tasks. It cannot link attributes in a data base to specific geographic entities and then automatically assign symbology from user-defined criteria. The CAD system can't automatically shade parcels of land based on values stored in a data base./14

As Ronald Abler of the National Science Foundation stated "GIS technology is to geographic analysis what the microscope, the telescope and computers have been to other sciences . . . ."

The Coconino National Forest is proceeding with the procurement of GIS hardware and software during FY 93.and 94. The procurement is preceded by an "Information needs Analysis " to determine the extent and cost of information to be included in the system. Primary GIS base layers provided by Region 3 of the Forest Service include, hydrology, transportation, boundary, landnet (public land survey system), land status, culture (man-made improvements) and topography. The Coconino NF has added six other base layers including soil, vegetation, archaeology, wildlife, recreation, and fire./15

The INA identifies the layer number, the information product title and the responsible staff. There are 82 separate information products identified for input into the system./15

Information currently loaded into the GIS on the Coconino NF includes TES (Terrestrial Ecosystems), ROS (Recreation Opportunity Spectrum), FMAZ (Fire Management Analysis Zone),COF (Forest Boundary with Ranger District Lines, Fire occurrence (last 6 years), Timber (compartment and stand data), Spotted Owl (from R-3) and some wilderness information.

## **COCONINO NATIONAL FOREST LAND MANAGEMENT PLAN LITERATURE REVIEW**

Oak Creek Canyon is listed as Management Area 14 in the Coconino National Forest Land Management Plan. The area encompasses 5,833 acres and extends from the Red Rock-Secret Mountain Wilderness boundary on the west to the east rim of Oak Creek Canyon as far south as Midgely Bridge. The area covers the bulk of the Congressionally designated Oak Creek Canyon Scenic Area. Highway 89A through the Canyon was designated as the first State Scenic

Highway and Oak Creek is the first designated State Unique Water./16

The largest number of developed recreation sites on the Forest are in the Canyon. The Plan lists water quality as an important concern and that both the Forest and State will strive to maintain water quality. Management emphasis includes visual quality, watershed condition, developed and dispersed recreation, visitor information services, and cold water fisheries habitat. The "Sedona/Oak Creek Plan of 1979" is adopted in its entirety as management direction for Oak Creek Canyon, except that minor changes were made in the base-in-exchange Land./16

Standards and guidelines listed in the Plan for the area include adopting the Oak Creek Canyon Scenic Highway and Oak Creek Unique Water and plan management activities accordingly. Dispersed use in Oak Creek is limited to day-use with emphasis on trails. The standards and guidelines in the plan require employees to conduct feasibility studies and develop projects for site rehabilitation which includes:

- 1) site grading and stabilization,
  - 2) stream protection or bank stabilization;
  - 3) planting denuded areas;
  - 4) road improvement and realignment; and
  - 5) site modification to accommodate modern recreation equipment.
- The S & G's include the development of a VIS Program, including displays at the District Office and in the Canyon./16

The Plan requires us to operate at least one campground or portion of a campground for the season Easter through fall colors and to operate other campgrounds on a season based on demand, cost-effectiveness and maintenance of site condition and quality. The minimum season is Memorial Day through Labor Day and we are required to operate at least one picnic ground year long. The S & G's mandate the Forest Management Team to cooperate with Arizona Game and Fish Department on fish stocking and fishing access. No timber activities are planned unless requested by recreation for user safety or development purposes and for insect and disease control./16

The Plan lists schedules for recreation site development in the first decade by priority, site type of development, and capacity. The Crescent Moon Campground is listed as priority number five out of ten. The Forest Service will be building a day use area at Crescent Moon instead of a campground.



## SEDONA/OAK CREEK PLAN LITERATURE REVIEW

The Sedona/Oak Creek Plan was adopted as part of the Coconino NF Land Management Plan. The Plan was prepared by a Forest Service Interdisciplinary Team with the help of a 15 person "Working Group" from the community. The team worked from February 1979 to December 1979 to develop a single comprehensive plan for the Sedona/Oak Creek Area. The group prepared an Environmental Analysis Report which resulted in a decision by the Forest Supervisor which amended the District Multiple Use plan./17

The Sedona/Oak Creek Plan is still in effect. The plan provides the following direction for developed recreation in Oak Creek Canyon:

- Maintain existing availability of overnight use facilities and increase day use facilities;
- Maintain visual quality objectives in all development;
- Maintain water quality to meet existing state standards;
- Maintain existing Visitor Information Sites and develop an additional VIS structure at mid canyon and upper canyon locations;
- Develop self guided nature walks in the canyon./17

The Sedona/Oak Creek Plan provides even more specific direction including:

- Banjo Bill and Bootlegger Campgrounds will be converted to day use;
- Expand camping facilities at Cave Springs, Pine Flat or Manzanita to compensate for that lost at Banjo Bill and Bootlegger;
- Construct picnic facilities at Oak Creek Vista, Slide Rock and Call of the Canyon;
- Develop and control parking at Slide Rock for 250 PAOT;
- Expand parking at Grasshopper Point to accommodate 250 PAOT;
- Monitor water quality to determine needed changes in management to maintain water quality;
- Construct a visitor information kiosk at the Vista and at Indian Gardens;
- Construct and operate a self-guided nature trail at Cave Springs Campground;
- Provide evening programs at the VIS Amphitheater in Cave Spring on a seasonal basis; and
- Utilize the district receptionist as Visitor Information distributor./17

The Colorado State University "Oak Creek Canyon Visitor Use and Preference Study" conducted in 1977 revealed three principal issues of most concern to the user public within Oak Creek Canyon-traffic, water quality and land purchase. The majority of the people commented in that survey that parking and camping facilities should be expanded in the canyon./17

## **DISCUSSION AND RECOMMENDATIONS ———**

### **LEVEL OF CUSTOMER SATISFACTION**

This project addresses the level of customer satisfaction by first determining who the customer is. This was done by studying available data on the demographics of the visitor to Oak Creek Canyon such as race, state of origin, recreation equipment, type of activity (camping or picnicking) and length of stay. Understanding the demographics of the visitor offers the opportunity to apply population surveys such as the "1992 Arizona Outdoor Recreation Needs Survey" and other user group surveys to Customer Satisfaction in Oak Creek Canyon.

#### **Use of Facilities by Various Racial Groups**

Our most recent available data indicates that the average use of developed sites by anglos in Oak Creek Canyon is 82% (see table 1), Hispanics 15% with Black, American Indian and Oriental totalling 3%.

Two campgrounds receive substantial use by hispanics. These include Manzanita Campground with 20% hispanic use and Cave Springs with 32%. Encinoso Picnic Area receives 16% hispanic use.



**TABLE I**

**RACIAL USE OF DEVELOPED RECREATION FACILITIES  
OAK CREEK CANYON RECREATION AREA  
Most Recent Available Data 1986**

Area Name	Type	Percent %				
		Caucasian	Hispanic	Black	Indian	Oriental
Midgely Bridge	Picnic	85	12	1	1	1
Encinoso	Picnic	80	16	1	2	1
Halfway	Picnic	85	12	1	1	1
Grasshopper	Swim	85	12	1	1	1
Slide Rock	Swim	85	12	1	1	1
Call-of-the-Canyon	Trail	85	12	1	1	1
Oak Creek Vista	Scenic	80	10	1	2	7
Manzanita	Camping	78	20	—	2	—
Banjo Bill	Camping	85	12	1	1	1
Bootlegger	Camping	85	12	1	1	1
Cave Spring	Camping	67	32	—	—	1
Pine Flat	Camping	84	14	1	1	—
Average Percentage	All	82	15	1	1	1

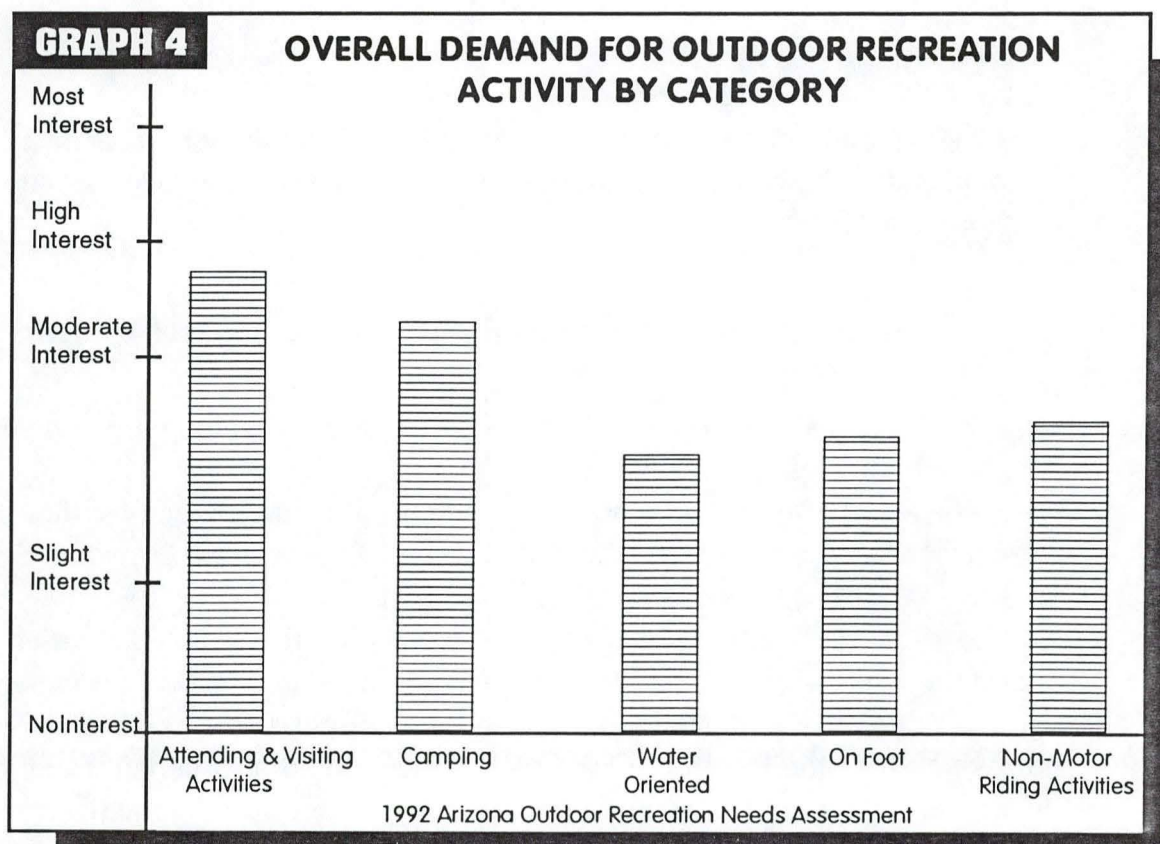
The Sedona Ranger District needs to consider installing some extended family or multiple family sites at Cave Springs and Manzanita Campgrounds to accommodate hispanics. We also need to provide playground facilities for children and continue VIS activities including evening programs, children's story and game time, nature walks (both children and adults). The Cave Springs Campground nature trail should be re-constructed with signs in both spanish and english. Interpretive and regulation signs should be bi-lingual where possible. We should continue to regulate users by the number of vehicles not an arbitrary maximum site occupancy number.

### Campground Use by Equipment Type

Available data on type of equipment used in the major campgrounds in Oak

Chart 2 puts the recreation activities offered in the Canyon into the categories of activities researched in the population survey done for SCORP. In other words, it shows what activity categories we have dedicated our developed recreation supply to in the Canyon. To understand the chart you need to refer to the description of category/activity listed in the Appendix.

According to the SCORP needs assessment and survey the people of Arizona want to be provided the opportunity to participate in attending and visiting , camping, water oriented, on foot and non-motor riding activities in the recreation areas that can reasonably provide them. Oak Creek Canyon does a marvelous job of providing for camping activities, water oriented activities, and visiting outstanding scenery (attending or visiting activities). It provides almost nothing for on foot activities, non-motor riding activities, and the portion of attending and visiting activities which includes picnicking, visiting historical and archaeological sites and visiting a playground.





## **Age of Developed Site Supply/18**

The developed recreation sites in Oak Creek Canyon are very old. The age of the facilities is as follows:

Pine Flat Campground	1939
Cave Springs Campground	1950's
Bootlegger Campground	1937
Banjo Bill Campground	1937
Manzanita Campground	1934-35
Halfway Picnic Area	1960
Encinosa Picnic Area	1957
Midgely Bridge Picnic Area	1939
Slide Rock Swim Area	1968
Grasshopper Point Swim Area	1967
Oak Creek Vista	1969

With facilities being this old with very little rehabilitation or reconstruction it is obvious that the supply of developed sites is aging and has been strictly limited since the late '60's.

## **Private Leisure Development Supply in Oak Creek Canyon**

We can't leave out our private partners in leisure development and what they supply to the recreationist.

The resorts cabins and rental units cater to a different type of visitor than the campgrounds. The users of the overnight resort facilities in the Canyon are often looking for day use activities.

Hiking, walking for pleasure and picnicking are favorite activities for the overnight resort visitor. The location of the resorts should be considered when constructing trail access facilities. The resorts would benefit tremendously from a trail which runs the length of Oak Creek. They would also benefit from facilities offering an opportunity to walk for pleasure or non-motor riding activities such as bicycle and horseback paths.

**TABLE 8**

**PRIVATE LEASURE DEVELOPMENTS  
OAK CREEK CANYON \***

Name	Type	# Sites
Briar Patch	Resort	14 Rental Cabins
Rainbow Trout Farm	Fishing-Camping	—
Living Springs	Summer Camp	—
Terrace Motel	Resort	13 Cottages
5 Oaks	Restaurant	—
Slide Rock Lodge	Resort	23 Rental Units
Garlands Lodge	Resort	15 Cabins
Junipine	Resort	50 Units
Forest Houses	Resort	20 Cabins
Don Hoel's	Resort-Store	24 Units
Total	10	159

\* Jones, Elmer & Krache. "Wildland Urban Interface Fire Protection Plan." Jan. 1993

### Supply of Land in Oak Creek Canyon for Developed Recreation

Land that can be used for developed sites in Oak Creek Canyon is very limited. I felt it fair to assume that developed sites should only be built on land with less than a 15% slope. To study this I calculated the approximate acreage in the Canyon with a slope of less than 15%. The area was plotted on mylar, scanned into the P/C Moss Data base at the Coconino National Forest Supervisor's Office, and a representation is shown in tabular form in Table 9. and on Map 1 in the Appendix.

**TABLE 9**

**TOTAL ACRES IN THE OAK CREEK RECREATION AREA  
WITH A SLOPE OF 15 PERCENT OR LESS**

Ownership	Total Acres	Developed Acres
Coconino National Forest	575	110
Arizona State Parks	37	13
Private	295	245
Total	907*	368

\* Includes approximately 290 acres of floodplain.



In Table 9 I listed the total acreage less than 15% slope by ownership (privately owned, National Forest and Arizona State Parks). This provides a preliminary look at the amount of land that can even be remotely considered for developed sites. This is, of course, without considering other important factors such as access, environmental effects (threatened and endangered species, riparian habitat protection, water quality, soil damage, cultural resources, etc.). Table 9 along with Map 1 illustrates the relatively tiny area still available for development just from a slope and ownership standpoint.

### **Recreation Opportunity Class**

The supply of each recreation opportunity class available in the Oak Creek Recreation Area is listed in Table 10 and on Map 2 in the Appendix. The ROS Class Mapping was updated on the Coconino National Forest in 1992 and entered into the GIS System. I drew a map of the Oak Creek Canyon Recreation Area on mylar, scanned it into the data base, and with the help of the Coconino NF Information systems Shop, generated a map which shows the acreage by each ROS Class.

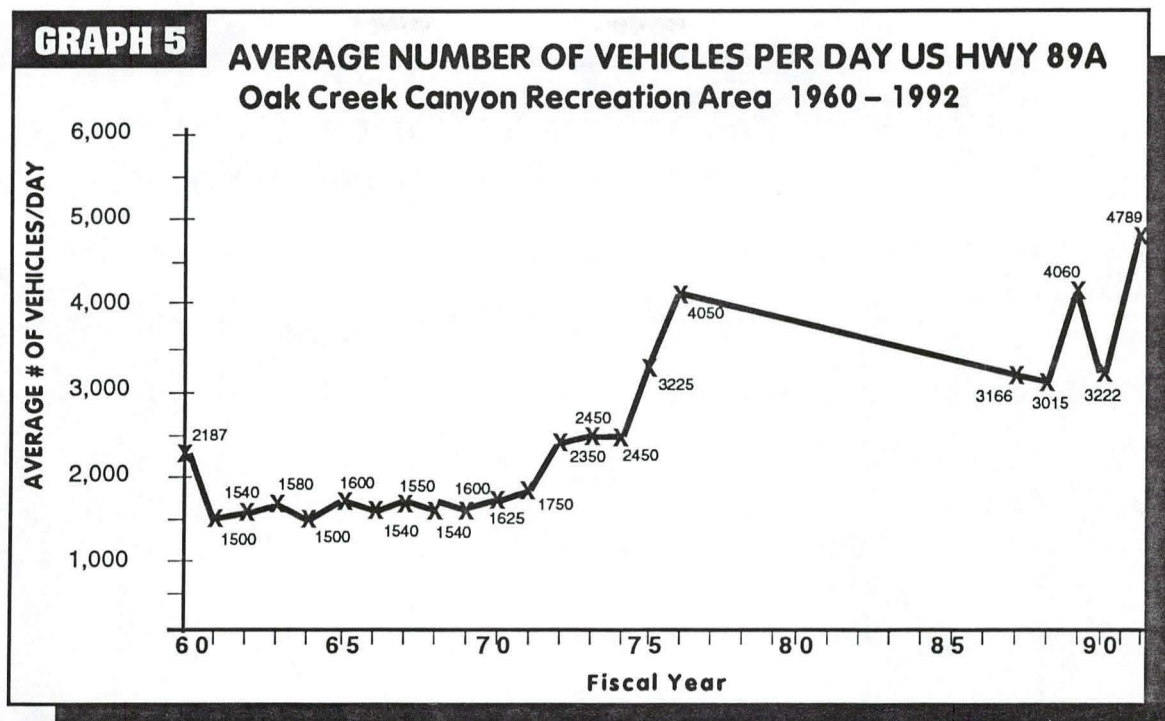
<b>TABLE 10      ACREAGE BY RECREATION OPPORTUNITY CLASS (R.O.S.) OAK CREEK CANYON RECREATION AREA</b>		
<b>R.O.S. Class</b>	<b>Acres</b>	<b>Percent</b>
Primitive	35.49	.36
Semi-Primitive Non-Motorized	1590.40	15.93
Semi-Primitive Motorized	1.32	.01
Roaded Natural Area	8255.05	82.69
Urban	101.09	1.01
<b>Total</b>	<b>9983.35</b>	<b>100%</b>

## **DEVELOPED RECREATION DEMAND**

### **Past Developed Recreation Site Use Data and Trends**

Graph 5 shows the increase in the average number of vehicles per day on US Hwy. 89A through Oak Creek Canyon. Use has fluctuated due largely to the economy. One such fluctuation can be seen in the difference between the count in '92 compared to '91 and '90. Highway traffic count data has been consistently documented for a long time and provides a dependable measure of use. One

strikingly interesting thing shown by this graph is that use remained fairly static until 1974 when it increased dramatically until 1976 after which it started to level out again.



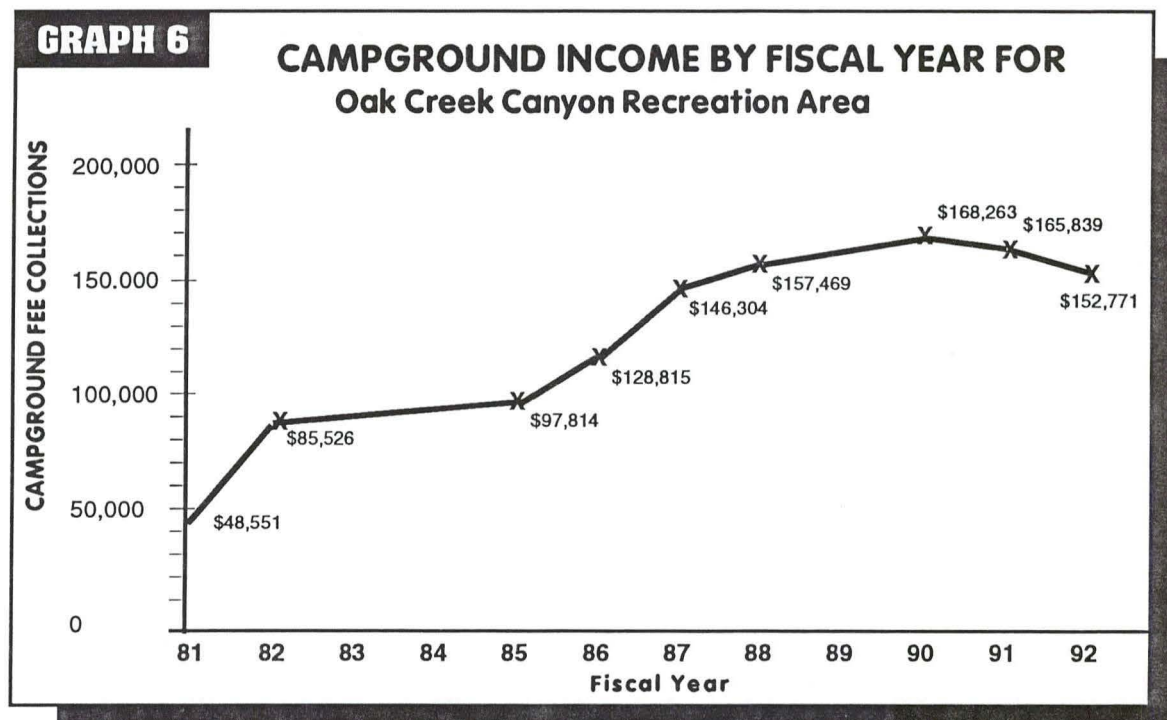
Graph 6 shows the increase in fees collected in our campgrounds from '81 through '92. Fees are another good measure of demand due to the careful efforts taken to collect and account for them. Notice the reduction in fees collected in '92 compared to '90 and '91. This is similar to the reduced use noted in Graph 5.

The Sedona Ranger District has fairly extensive RIM Data going back to '69. It was difficult reviewing the data and putting it in a graphic form. It took approximately 2 days of work to analyze the data and graph it but it gave me a chance to review past historical use and it revealed some interesting information on use demand. The data of course fluctuated wildly but it is the best we have and if you ignore the wild fluctuations it is very useful.

One of the first things revealed by this data is that we had a developed fishing site at Cave Springs Campground from '73 to '82 and a Historic Site (Mayhew's Lodge) from '76 until it burned down in '81. These are two types of activities that are very much in demand but are no longer available in Oak Creek Canyon. We



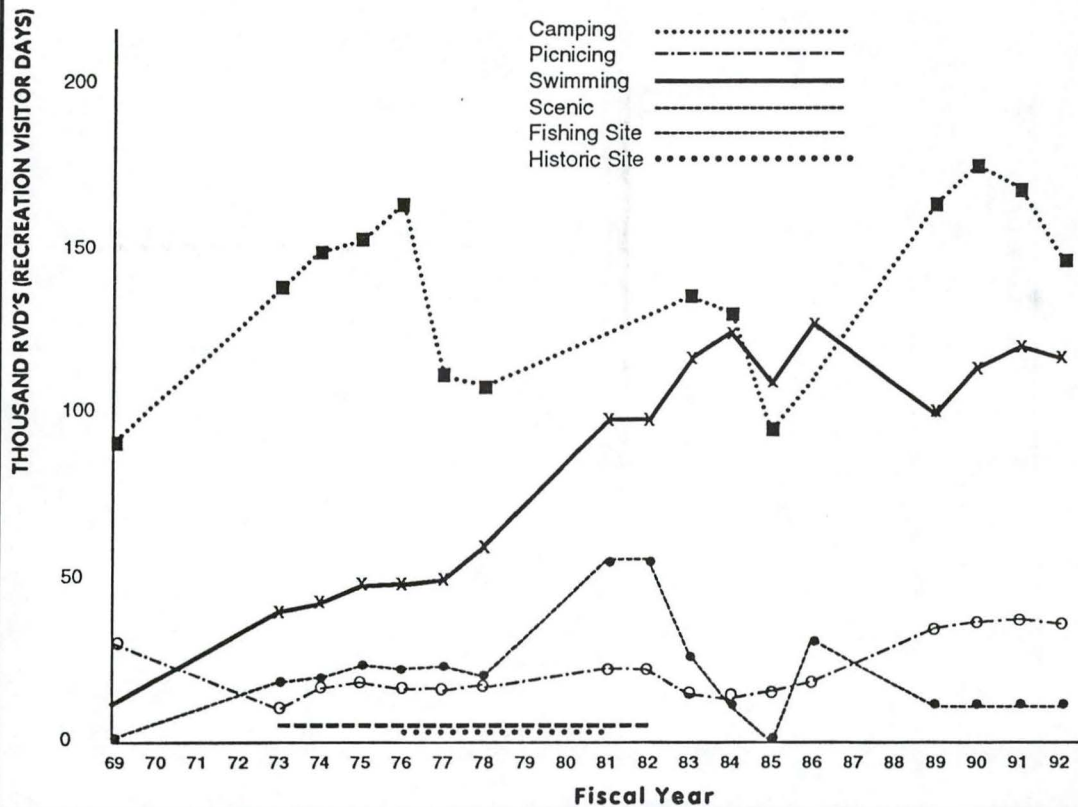
are, however, planning to rebuild the disabled fishing facility at Cave Springs and there are opportunities to do historical site interpretation at numerous sites in Oak Creek Canyon, particularly at the ruins of the Mayhew Lodge, the Rosa Thomas Cabin (where the Zane Grey Book "Call of the Canyon" was written) and at the Cave at Cave Springs.



Graph 7 clearly shows that we are doing a better job meeting the demand for swimming and camping than we are for picnicking and scenic viewing. Keep in mind, this graph does not take into account highway parking and viewing from the highway. It documents use at all five campgrounds, Slide Rock and Grasshopper swim areas, and Encinoso, Halfway, and Midgely Bridge Picnic Areas. The graph shows that swimming use has drastically increased over the years. Camping use has increased slowly but steadily, but picnicking and scenic use has remained the same. The supply of recreation sites in Oak Creek Canyon has been static for many years it's amazing that any increases in use have occurred with the saturation of facilities and the reduced budgets.

**GRAPH 7**

**DEVELOPED RECREATION SITE USE IN RECREATION  
VISITOR DAYS FROM RECREATION INFORMATION MGT.  
SYSTEM (R.I.M.) 1969 - 1992  
Oak Creek Canyon Recreation Area**

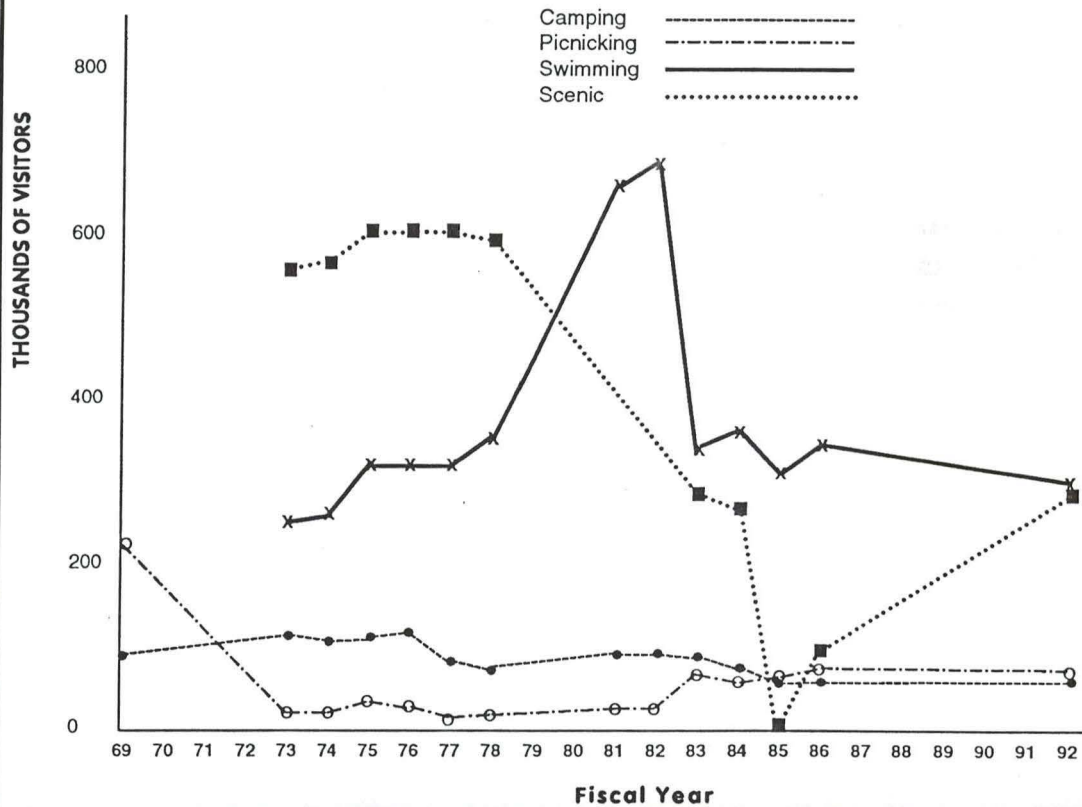


Graph 8 shows that we serve many fewer visitors in our campgrounds and limited picnic facilities than we do at our swim areas and scenic spots. It also shows the out of control use that occurred at the Slide Rock Swim Area before the State Park took control of the site and the parking in the mid-'80's. The graph shows the closing of the Oak Creek Vista in '85 due to lack of funds to operate it (note the zero use for "scenic" in '85). The most obvious thing that this graph show is that our campgrounds and picnic areas have been filled to capacity since '69 and probably before that. We are not serving anymore people today than we did then even though demand has increased at least five times since 1960 according to dependable highway use data.



**GRAPH 8**

## DEVELOPED RECREATION SITE USE IN THOUSANDS OF VISITORS FROM R.I.M. 1969 – 1992 Oak Creek Canyon Recreation Area



## CUSTOMER SATISFACTION SURVEYS

Population studies such as the "1992 Arizona Outdoor Recreation Needs Survey" have helped us understand what sixty percent of our recreation users at Oak Creek Canyon developed sites want.(see table 3) Further study of the California State SCORP will help us understand another approximately 20% of the developed site visitors wants and needs.(see table 3). "Customer" Surveys conducted during the spring and summer of 1992 will provide us with a wide

variety of data on the specific "user" of the Recreation Area and ways to improve customer satisfaction.

We estimate 703 thousand visitors used National Forest Developed Recreation Sites in Oak Creek Canyon in 1992 (Graph 8). Visitation at Slide Rock State Park totalled 300 thousand visitors during the same period. There were, therefore, one million total visits to publicly owned developed sites in the Oak Creek Canyon during 1992. During the same period we had approximately five million visitors driving through Oak Creek Canyon on US Highway 89A (Graph 5 average daily traffic count times an average of 3 people per vehicle). We are obviously not getting a "true picture" of the customer if we only survey the visitors to our recreation sites as we did in the "Customer Survey" in 1992.

We need to do a "Customer Survey" of the Highway 89A visitor. One way to do this is with "Customer Report Card". The "Report Card" could also be used as a periodic monitoring system after the full length "Customer Survey" to monitor customer satisfaction. The development of the report card form has been completed and two versions have been approved by the Office of Management and Budget (OMB). One version contains measures of attribute importance and satisfaction and the other contains measures of attribute satisfaction only.

The Report Card can be administered through personal interview, by mail, or by self administration by recreationists at recreation sites and areas. The type of information we need to know from our visitors on US 89A includes demographics (i.e. where are they from), what they would like to do in Oak Creek Canyon, did they get to do what they wanted (entrance and exit interviews), how big is the group, how long do they want to stay, how important do they rate recreation attributes (cleanliness, crowding, condition of natural features, suitability of facilities, etc.) and satisfaction with the cleanliness, crowding, interpretive information, suitability of facilities etc.

The forms made available to us through "Customer Report Card" ask most of the questions that would be useful to us in understanding the wants, needs and satisfaction of the US 89A visitor. It is in questionnaire form and therefore gives the user a chance to evaluate the whole trip and let us know not only what they wanted to do but if they were satisfied with their experience it also gives them a place to list other comments or questions. It does not ask the visitor if they actually got to do what they originally wanted to do. For example, if they originally set out to camp and they were disappointed because they couldn't find place to camp in Oak Creek Canyon. We would, however, probably find out about unmet wants and needs in the comments section of the questionnaire and from the answer to



two of the questions—"How do you feel about the overall quality of the recreation services provided? And how do you feel about the overall recreation experience you had here?".

It will be a major task to hand-out questionnaires on Highway 89A. First of all, a random sampling strategy must be followed for the data to be a representative of visitors. According to the sampling strategy for Customer Report Card, if the questionnaire is distributed in person by official personnel (which almost certainly would have to be done along the highway) it should be handed out to all visitors 12 years old or older at the approximate end of each 1/3 of the period during the day that the site or facility is open. The problem with sampling the users of a highway is that it's open 24 hours a day and we obviously don't want to be out there after dark handing out questionnaires.

Logical times for questionnaire distribution can be devised keeping in mind that a representative sample of visitors across the day is the target. In this case the word "day" must be taken literally and could probably be defined as day light hours.

The sampling system also requires a random sample of sites along the highway. This would be very difficult along US 89A because there are very few places where traffic can be safely stopped, the visitors greeted and the questionnaires handed out. We could however, select a random sample of the sites where we know we can safely stop traffic.

One of the difficulties of doing a "Customer Report Card" survey of US89A is that we would need a selection of random locations and days to sample. If that were not the case we could just use Highway Department Road Blocks and traffic control as an "easy opportunity" to stop vehicles and handout the questionnaires without having to deal with the expense and time of setting one up. If the opportunity arises we need to use these road blocks. That would especially work well if there are long-term highway construction projects in which we can randomly select sample days. It would also help if the construction projects were in a variety of locations in the Canyon.

One of the problems with construction projects is that people are usually a little grouchy and impatient and that may be reflected in the way they answer the questions. Using construction project road blocks would, however, avoid the problem of upsetting people by stopping traffic just for a survey.

Because of the great expense and difficulty of setting up a roadblock on US 89A it is recommended that a random sample of days during the recreation season be drawn on which to distribute the questionnaires. To draw such a sample,

weekend and holiday days should be kept separate from weekdays and two or more samples of weekend/holiday days and of weekdays must be randomly drawn. The questionnaires would then be handed out at those sites at the end of each 1/3 of the period of the day. For example, if we assume the day is 8:00 AM to 6:00 PM, we would hand out the questionnaires at approximately 11:20 AM, 2:40 PM, and 6:00 PM. The questionnaires could be mailed back to the Ranger District.

The best way to use "Customer Report Card" is of course the way it was designed to be used, that is, as an overall survey of all recreation sites in Oak Creek Canyon including, developed overnight use, developed day use, road based use, land based dispersed or back-country use, and water based dispersed use. Sites would be classified by the type of use listed above and by heavy or light to moderate use. Ten lists would then be generated (the five types of site times the two intensities of use) and a random sample of 1/4 to 1/3 of all sites, places, etc. would be selected. This sampling would provide managers with a complete report card on the entire canyon.

The questionnaires could be placed at unmanned sites with signed pickup and drop box stations (such as a trailhead). They could be placed on the windshields of cars, or distributed at manned sites with return of completed questionnaires to a designated and clearly signed location or drop box.

One of the benefits of using "Customer Report Card" is that it is part of a National System in which data can benefit not only the Sedona Ranger District but the Forest Service and Nation as a whole. "Customer Report Card" is a logical linkage between the new Forest Service Meaningful Measures program for recreation and the full-length "Customer" survey.

We need to do a "Customer Survey" of US Highway 89A, so that we know more about recreation wants and needs of a sample of the over five million visitors who travel through the area. We also need to do periodic "Customer Report Card" type surveys of our developed sites to see if we are providing customer satisfaction.

# IMPLEMENTATION PLAN FOR A SPECIAL AREA STUDY OF OAK CREEK CANYON

A special area study of the Oak Creek Canyon Recreation Area must include the following:

## I. INVENTORY AND RESEARCH

TASK	RESPONSIBLE PERSON OR FUNCTION
<b>A. Customer Satisfaction</b>	
Complete "Customer"	SE Exper. Sta
Complete Customer Report Card 89A	Dist. Rec. Staff
Complete CRC for all Oak Ck. Sites	Dist. Rec. –
Establish Permanent Suggestion Boxes for CRC or other "open suggestions"	Dist. Rec. Staff
Review Arizona SCORP and '92 Needs	Study Team
Review California SCORP and Needs	Study Team
Complete Site Accessibility Inventory	S.O. Engineering
Study Ethnic Needs at Developed Sites	Dist.Rec Staff
<b>B. Physical Inventory and Mapping</b>	
Enter the following into GIS Moss Data/Base	Dist. Staff
In addition to what is already there ownership, Forest Service Quad. Maps, archeol. & Historic sites, road system, trail system, floodplain & floodway, bridges, low water crossings, special use permits, irrigation ditches & ponds, developed site boundaries, 89A mile markers, rare & T & E Species habitat, fields, Fire Stations: TES,ROS, Boundaries, Timber, Spotted Owl Habitat and Wilderness is Already in the System.	
Facilitate Installation of PC/Moss Data Base and scanner capability at Sedona District Office	Forest G.I.S. Spec.



Facilitate Installation of PC/Moss Data Base and  
scanner capability at Sedona District Office

Forest G.I.S. Spec.

### **C. Use Data Research**

Traffic Inventory

S.O. Engineering

Install Traffic Counters & Loops at all  
develop Sites and Trailheads

Rec. Mgr. or Asst.

Collect Use Data Developed Sites

Rec. Mgr. or Asst.

Install Trail Counters on all Oak Ck. Trails

F.M.O.

Collect Trail Data

Wilderness Rgr.

## **II. PUBLIC INVOLVEMENT (SCOPING)**

Issue, Concerns & Opportunity Workshops in  
Flagstaff, Oak Ck. Canyon and Sedona

Study Team

Citizen Advisory Groups (establish-facilitate)

Study Team

News Releases

P.I.O.

## **III. REVIEW COCONINO LMP AND SEDONA OAK CK PLAN S & G'S TO DETERMINE**

If They are still Valid Subject to New Scoping,  
ICO's & Inventory and Research Information.

Study Team

Determine Initial Evaluation Criteria based on ICO's

## **IV. PUBLIC INVOLVEMENT (ALTERNATIVE GENERATION)**

Take New Alternatives to the Public for review  
and discussion show them a preferred alternative.

Study Team

Hold Workshops (Flagstaff, Oak Ck, and Sedona)

## **V. PREPARE PLAN AMENDMENTS AND NEW S & G'S FOR PUBLIC REVIEW**

Forest Planning Staff

## **VI. DETERMINE IF CATEGORICAL EXCLUSION (DM), EA OR EIS IS NEEDED FOR PLAN AMENDMENTS**

Forest Supervisor

## **VII. COMPLETE DECISION DOCUMENT AND IMPLEMENT PLAN AMENDMENTS**

Spreadsheet Planning

Dist. Rec. Staff

Recreation Budget Planning

and S.O. Specialists

## CONCLUSIONS

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The Oak Creek Canyon Recreation Area has not achieved its full potential to respond to the changing needs of customers. We need more trailheads, trailhead parking and picnic areas. We also need to provide more opportunity for "walking for pleasure", non-motor riding activities (bicycling, mountain biking and horseback riding) and we need to establish an "Oak Creek Trail". Ecological and environmental effects of future developments must be thoroughly studied before they are approved. The Forest Service needs to respond to the demands of the Arizona citizens who account for 60% of the use in Oak Creek Canyon.

The Sedona Ranger District needs to implement an aggressive "Customer Satisfaction" program. This program includes the completion of "Customer", the implementation of "Customer Report Card" at developed recreation sites and a survey of highway 89A visitors. The results of the surveys should be analyzed and adjustments made in facilities and programs to provide for customer satisfaction. The district ranger and staff need to spend more time with the recreation visitors in the developed sites on weekends, evening hours and holidays. This will help us to be more aware of the problems and opportunities encountered during these times. The Sedona Ranger District needs to practice demarketing techniques in Oak Creek Canyon. These include:

- 1.) Differential pricing or reducing pricing during non-peak times and increasing price during peak times.
- 2.) Advertisement and promotion to "demarket" peak periods and emphasize the good attributes available during non-peak periods and
- 3.) Encourage the construction of other campgrounds, picnic areas, and trailheads within a 20 minute drive of Oak Creek Canyon to provide alternative services.

The district staff needs to keep data on the demographics of our users especially cultural data. We also need to construct multiple family sites at Cave Springs and Manzanita Campgrounds where 20 to 30 percent of the use is hispanic.

Data gathered during this project indicates the Coconino N.F. needs to make the following changes to facilities and programs:

FACILITY	CHANGES
Manzanita C.G	A few multiple family sites, emphasize tent camping, play-ground facilities, picnicking at half price of camping, trail and trailhead connections, expand equal to loss at Banjo and Bootlegger, showers.
Banjo Bill C.G.	Picnicking only, fix smelly toilet.
Bootlegger C.G.	Picnicking only, water -provide for.
Cave Springs C.G.	A few multiple family sites, picnicking at half price of camping, nature trail, bilingual, bilingual signing, playground equipment, trail and trailhead connection, evening and daytime V.I.S., showers, firewood, emphasize tent camping.
Pine Flat C.G.	Picnicking at half price, playground facilities, evening and daytime V.I.S., trail and trailhead connection.
Troutdale Picnic Area	Construct a picnic Area
Grasshopper Point Swim Area	Expand parking and install picnic facilities.
Oak Creek Trail	Obtain necessary easements and construct the 15 mile trail. Use existing highway parking and new trailheads for parking.
Bicycle Lane 89A	Construct four foot wide shoulders next to both lanes of of US 89A.



Trailheads	Construct trailheads with parking for the Wilson Mtn, Thompsons Ladder, Sterling Canyon, A.B. Young, & Grandpa's Cave Trails. Trailheads will accommodate at least 10 cars each.
Campgrounds	Construct new campgrounds at Mexican Pocket on us 89A, at Dry Creek and at the Stage Stop on Hwy 179. These campgrounds will provide alternatives for Oak Creek.
Historic Interp. Sites	Install historic interpretive sites at the Call-of-the-Canyon, Mayhew Lodge, Thomas Cabin, Milk House and other selected historic sites.
Information Sites	Operate visitor information sites at the Oak Creek Vista and Indian Gardens in cooperation with the Arizona Natural History Assoc.
Oak Creek Vista	Expand Parking by 50 cars and provide picnic tables.

The Coconino National Forest Land Management Plan and the Sedona Oak Creek Plan provide good general direction for the management of the Oak Creek Canyon Recreation Area. The standards and guidelines for the LMP need to mention the importance of S.C.O.R.P. and Oak Creek's place in providing for the recreation demands of Arizonans. The plan needs to emphasize the development or altering of facilities to satisfy the top five activities including visiting outstanding scenic areas, Visiting historic places, picnicking and walking for pleasure. The plan needs to address the four activities with the greatest unmet demand which includes picnicking, visiting historic places, tent camping and visiting outstanding scenic areas. The authors of the "plan" stated that dispersed use in Oak Creek is limited to day use with emphasis on trails but they did not mention the need for trailheads. Future amendments to the Coconino and the Sedona Oak Creek plans need to list "Customer Satisfaction" as a management emphasis item. The standards and guidelines section of the "plan" needs to require employees to conduct customer satisfaction surveys in Oak Creek Canyon.

## SUMMARY

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This study analyzed the acreage allocation to various recreation activities and activity categories in Oak Creek Canyon. The study also reviewed population studies and customer satisfaction studies to find out what Arizonans and other users want in outdoor recreation. This study found severe shortages in the supply of facilities for high demand activities such as picnic areas, trailheads, bicycle paths, walking for pleasure and historic sites. The agency does a very good job in providing for driving for pleasure, camping, swimming and scenic viewing activities.

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Creek Canyon indicates that a vast majority of the users prefer tent camping even in campgrounds which can accommodate motor homes and trailers (see Table 2). Tent campers account for 84% of the visitors at Manzanita Campground, 70% at Cave Springs and 80% at Pine Flat based on 1992 data.

**TABLE 2**

**CAMPGROUND USE BY EQUIPMENT TYPE  
OAK CREEK CANYON RECREATION AREA  
Most Recent Available Data 1992**

Campground	Percent %				
	Motor Homes	Campers	Trailers	Van/Car	Tent
Manzanita	3	3		10	84
Cave Spring	7	4	3	16	70
Pine Flat	10	2	4	4	80
Average	7	3	2	10	78

The "1992 Arizona Outdoor Recreation Needs Survey-Final Report" lists tent camping as number 9 out of 42 activities by rank. Recreational Vehicle Camping is number 13. It appears that we need to continue to encourage tent camping over RV camping in facility design and planning. It is obvious that even in campgrounds where we have trailer spurs the demand for tent sites far exceeds the demand for sites which accommodate RV's. The larger spur sites are now being taken by extended family groups with several tents and more cars. Pine Flat Campground has the largest percentage of motor homes and trailers. It was paved and the spurs enlarged in early 1992.

### **Campground Use by State of Origin**

The data listed in Table 3 indicates that Arizonans are the heaviest user group by far in Oak Creek Canyon. They account for an average of 59% of the visitors at our three largest campgrounds, Californians are second with 19%, other users totalled an average of 22%. Cave Springs Campground had the highest percentage of Arizonans with 67%.

**TABLE 3**

**CAMPGROUND USE BY STATE OF ORIGIN  
AND PICNICING OR CAMPING BY PERCENTAGE  
Most Recent Available Data 1992**

Campground	Percent %			Camping	Picnicing
	Arizona	California	Other		
Manzanita	56	24	20	97	3
Banjo Bill	0	0	0	0	0
Bootlegger	0	0	0	0	0
Cave Spring	67	14	19	99	1
Pine Flat	53	20	27	99	1
Average	59	19	22	98	2

With the largest percentage of our users coming from Arizona it is a fair assumption that the "1992 Arizona Outdoor Needs Survey-Final Report" could be used in Oak Creek Canyon to assess whether or not we are providing what Arizonans want in the form of outdoor recreation. The California State Comprehensive Outdoor Recreation Plan could also be applied in Oak Creek Canyon to assess whether we are providing what the Californians want.

Table 3 also lists the percentage of users who pay the full fee to picnic in our Oak Creek Canyon Campgrounds. Only a small percentage of the visitors (2%) pay to picnic in the campgrounds.

With the extreme demand for picnicking listed in the Arizona Needs Survey it only seems reasonable that we allow a reduced fee for picnicking in our campgrounds, at least until we can provide more picnicking facilities.

### **Campground Use by Length of Stay**

Length of stay can be a significant factor in campground design. If, for instance, campers stay only one day on an average they are not going to be looking for as much to do as those who stay several days. In Manzanita Campground 50% of the visitors stay two days or more.

In Pine Flat Campground only 24% of the visitors stay two days or more (see table 4). Cave Springs Campground has the longest average stay with 54% of the

visitors staying 2 days or longer. In fact, 30% stay 3 days or longer.

**TABLE 4**

**CAMPGROUND USE – LENGTH OF STAY  
BY PERCENTAGE  
Most Recent Available Data**

	Percent %							
	1 Day	2 Days	3 Days	4 Days	5 Days	6 Days	7 Days	H/C
Manzanita	50	25	15	6	2	1	1	0
Cave Spring	46	23	14	7	4	2	3	1
Pine Flat	76	15	5	3	1	0	0	0
Average	58	21	12	5	2	1	1	0

We obviously need plenty for people to do in and around our campgrounds, particularly Manzanita and Cave Springs. If they can stay busy in and around the campgrounds instead of driving we can reduce traffic congestion in the canyon. This is particularly significant when you consider that 875 people occupy the campgrounds in Oak Creek at one time with a parking capacity of 302 vehicles in our campgrounds. If those cars drive some place else, particularly in the canyon, the campsite parking will be taken and so will other parking spots at the campers day use destination.

The campgrounds should have at least one hiking trail within walking distance, they should have a playground, a multipurpose field, a nature trail, and day and evening interpretive programs.

The idea of a trail running the length of Oak Creek Canyon needs to be pursued. The trail would serve many purposes. It would link recreation facilities and major trailheads and would offer a non-wilderness/non-motorized transportation artery in Oak Creek Canyon. Old irrigation ditches could be connected to existing paths and easements could be obtained across private land where necessary. There is widespread support "waiting in the wings" to push this proposal. It was suggested by Ron Plapp, who recently retired after 28 years as Fire Management Officer and Trails Coordinator for the Sedona Ranger District.



## Camper Comments from Fee Envelopes

The campground fee envelopes provided the visitor a chance to comment on their "customer satisfaction". People used them until the Forest Service changed to a new fee envelope that does not have a place for comments. We have camper comments from 1991 but not from the 1992 recreation season. We are considering installing suggestion boxes in our campgrounds to offer the visitors a chance to comment now that we have gone to a fee envelope that doesn't offer that opportunity. The only problem with accepting unstructured comments is we may not be able to ask some of the questions we would like answers for in addition to whatever comments the visitor wants to make. A small "post card" size questionnaire with a space for comments might be preferable.

We received 378 comments in 1991 on the back of fee envelopes (see Table 5). The greatest number of comments were miscellaneous comments which could not be categorized but were reviewed by the recreation manager and considered. The next highest number of comments came from those who were satisfied (20% of the comments) and those who wanted showers (12%). Other significant numbers of comments included the need for more campsites, "the fee's too high", more water faucets and smelly toilets.

**TABLE 5 1991 CAMPER COMMENTS FROM FEE ENVELOPES**

User / Comment	Pine Flat		Cave Springs		Bootlegger		Banjo Bill		Manzanita		Total & Avg.	
	#	%	#	%	#	%	#	%	#	%	#	%
MoreCampsites	12	8.7	6	5.6	3	7	6	12	2	4.5	29	8
FeeToo High	13	9	6	5.6	4	9.3	4	8	2	4.5	29	8
Firewood	5	3.6	6	5.6	0		1	2	2	4.5	14	3
More Water Faucets	7	5.1	9	8.4	10	23.3	1	2	0		27	8
Showers	11	8	10	9	6	14	6	12	6	13.6	39	12
Dirty Site	0		2	2	0		0		0		2	2
Satisfied	26	18.8	17	15.9	7	16.3	11	22	11	25	72	20
Smelly Toilets	7	5.1	5	4.7	2	4.7	5	10	3	6.8	22	6
Problems/Neighbor's	5	3.6	6	5.6	3	7	0		0		14	2
More Patrols	1	.7	0		0		1	2	1	2.3	3	1
Pro Host	5	3.6	0		0		0		0		5	1
Con Host	1	.7	0		0		0		0		1	0
Good Camp Programs	1	.7	2	2	0		0		0		3	1
Unhappy Campers	0		2	2	0		0		0		2	0
Misc.	44	31.9	36	33.6	8	18.6	15	30	13	29.5	116	29
Total Comments	138		107		43		50		40		378	

## INVENTORY OF THE DEVELOPED RECREATION SUPPLY

We have never stood back and looked at the total developed recreation supply in Oak Creek Canyon. We need a "snap shot" of what the supply is, not just in number of sites or PAOT (People at one time) days or RVD's (Recreation Visitor Days) but a true picture of how much of the resource we have allocated for developed recreation in the Canyon. This project is attempting to do that.

First, with the car or pickup being the chosen form of transportation in the Canyon, an inventory of parking spots along the highway was done. The parking spots and the highway are considered "developed recreation sites" in this study. Secondly, the total acreage of parking spots along the highway and the acreage of the highway itself were calculated. Also, the number of parking spots in the developed sites was determined as was the acreage of developed sites. For the purpose of this study the distinction between a developed site and undeveloped acreage was whether the area had been altered physically or was an "affected area" within the perimeter of a developed site.

### Total Highway Parking along US 89A in Oak Creek Canyon

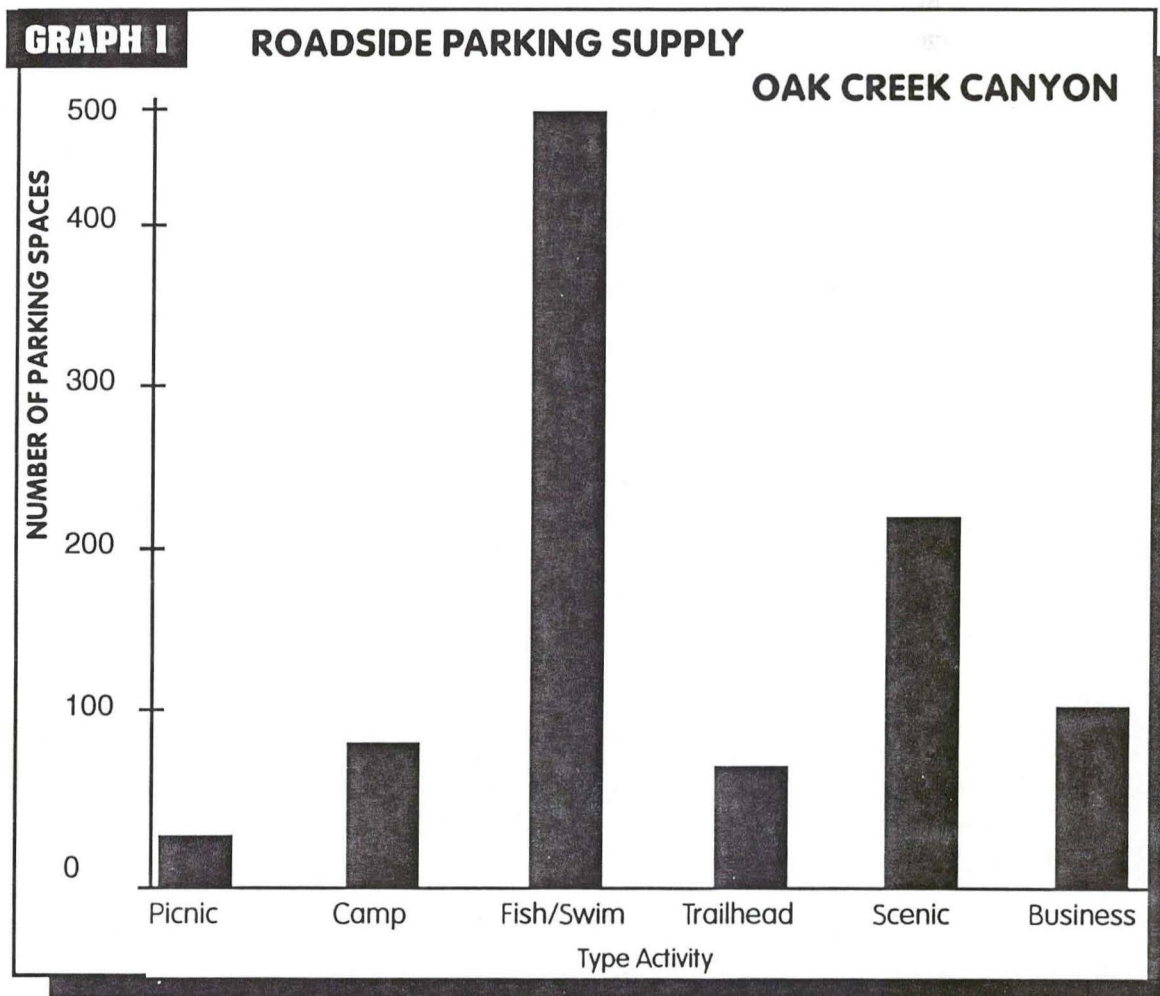
The parking spaces along US 89A in Oak Creek Canyon were physically measured, on the ground with a "measuring wheel".

The number of spaces was based on a standard sized parking spot which according to our engineers is 9' X 20'. In large areas total parking spots were determined by calculating the total parking spaces and then deducting the number of spots which occupy access lanes for ingress and egress from the parking lot.

<b>TABLE 6      U.S. HWY 89A ROADSIDE PARKING SUPPLY OAK CREEK CANYON RECREATION AREA</b>		
	<b>Parking Spaces</b>	<b>Acres</b>
Scenic	221	.9
Trailhead	74	.3
Picnic	35	.1
Swim	141	.6
Swim-Scenic	20	.1
Swim-Fish	312	1.3
Swim-Picnic	3	0
Camp	89	.4
Business	101	.4
Total	1026	4.2

The inventory of the total number of parking spots along the highway was not enough. I had to try to make a guess what the parking was used for, i.e. scenic, trails, swim, camping or business. This helped me determine what "visitor need" or activity we are serving at the site.

The highway offers an opportunity to "cram" many cars in a relatively small number of acres. This is obvious with 1026 parking spots in only 4.2 acres of highway parking. Most of the parking spots are single file spots parallel to the highway. Ingress and egress is on the highway. Many of the parking spots are used for creek access for a combination of reasons such as swimming/fishing, swimming/campground overflow and swimming/scenic viewing.



Most of the roadside parking serves water based recreation activities and scenic viewing activities. Heavy demand activities such as picnicking and trails



are not well served by the highway parking. The only roadside parking spots which were inventoried were those that were not posted "No Parking" and were reasonably safe. There are 106 separate parking areas along the highway in Oak Creek Canyon from mile post 375.1 to the Oak Creek Vista. The spots vary from one car in size to 68 cars in size and they are on both sides of the road. Parking spots were measured and included regardless of ownership. The only requirement was that they were available for public parking. The parking spots were evenly distributed with 55 spots on the west side of the road and 51 on the east side. See Map 1 in the appendix.

The Forest Service needs to closely monitor the installation of new roadside parking spots along the highway whether they just happen as a result of highway maintenance crews piling rock slide material or recreationists building parking spots. Roadside parking is important and serves the recreationist who wants a dispersed recreation experience in Oak Creek Canyon or who has been displaced because the developed sites are full. Roadside parking can also be the catalyst that starts soil erosion, vegetation damage, illegal camping, fire occurrence and other problems. The problem with roadside parking is it does not offer maintained access trails, sanitation and trash facilities. It is just that, roadside parking.

The District Staff needs to take a look at roadside parking and work with the Arizona Department of Transportation to make roadside parking safe and fix damaged parking spots which are unsafe and are causing erosion and vegetative damage.

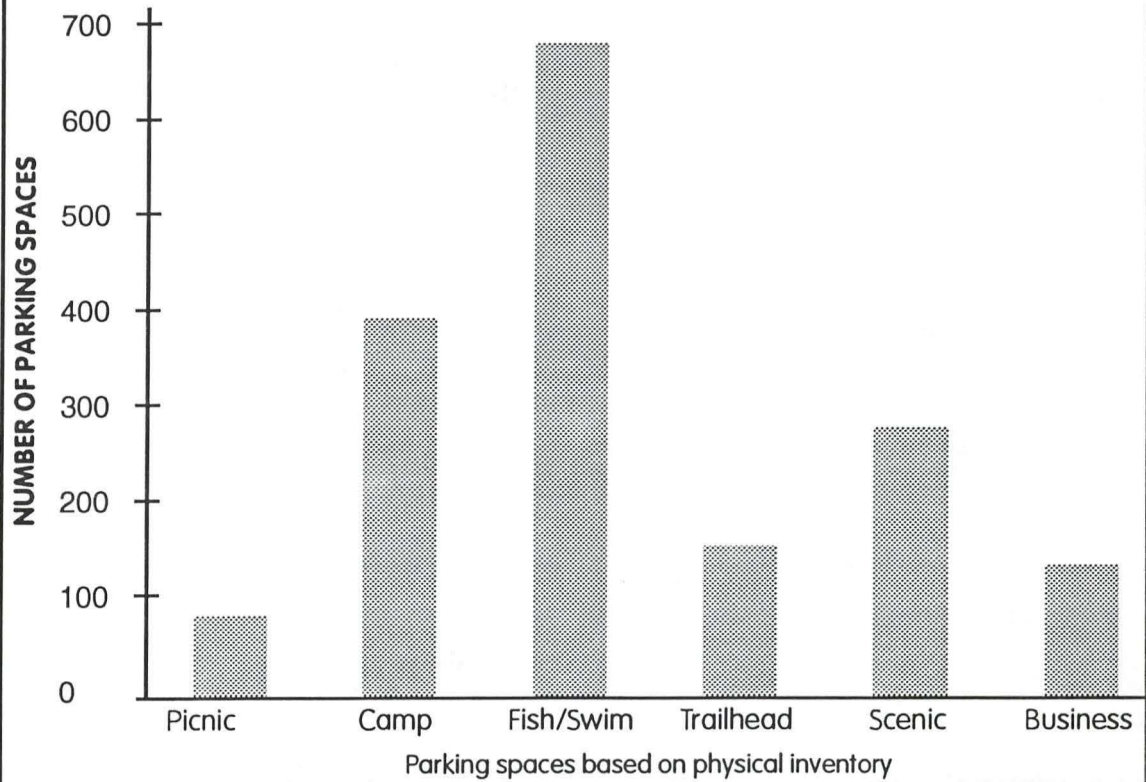
### **Total Number of Developed Recreation Parking Spots**

The number of parking spots in the developed sites in the Oak Creek Canyon Recreation Area was determined by an on the ground inventory. These were added to the number of spots along the highway to calculate the total by activity. A total of 1630 parking spots were measured including 1026 spots along the highway and 604 in the developed sites. This is significant because it shows the highway parking can accommodate almost twice the number of vehicles than the other developed sites.

The number of parking sites available to recreationists obviously do a good job serving the camper, water-based recreation user and the scenic visitor. They do a poor job accommodating the picnicker and the trail user. The high demand for those activities by Arizonans, according to the "1992 Arizona Outdoor Recreation

**GRAPH 2****TOTAL NUMBER OF PARKING SPACES BY ACTIVITY IN OAK CREEK CANYON**

Includes both highway and developed recreation site parking



Needs Survey”, makes it obvious that we need to increase the supply of trailhead and picnic parking.

**Total Supply of Developed Recreation Sites in the Oak Creek Canyon Recreation Area —**

Including the number of sites, design capacity, acreage and maximum capacity.

Table 7 provides a “snap shot” of the total supply of developed recreation in the Oak Creek Canyon Recreation Area. There is a significant difference between the number of sites and the number of parking spaces. One site may have as many as five parking spaces and if the user doesn’t block the road we don’t count the number of people in the site. The true site capacity is therefore based on the number of parking spots not the number of individual sites. There can be a vast



difference between the design capacity and the maximum possible occupancy during a peak day or night. That becomes clear when you look at Cave Springs Campground with a design capacity of 400 but a potential possible occupancy of 800.

**TABLE 7**

**SUPPLY – DEVELOPED RECREATION SITES –  
PUBLIC OWNERSHIP – OAK CREEK CANYON**

Site Name	Activity	# Sites	PAOT Design Capacity	#Pkg Spaces	Site Acres Acres	PAOT Maximum Capacity
Midgely Bridge	Picnic	2	10	20	.3	60
Encinoso	Picnic	13	65	15	1.5	75
Halfway	Picnic	9	45	10	1.0	50
Grasshopper	Swim	29	145	29	.3	145
Slide Rock (N.F.)	Swim	—	250	—	2.3	250
Slide Rock State Pk	Swim	141	705	141	10.2*	705
Call-of-the-Canyon	Trailhead	57	171	57	1.0	171
Oak Creek Vista	Scenic	30	150	30	10.7	200
Manzanita	Camping	19	95	19	3.3	95
Banjo Bill	Camping	8	40	8	3.4	40
Bootlegger	Camping	10	50	10	2.5	50
Cave Springs	Camping	78	390	160	260	800
Pine Flat E & W	Camping	58	290	105	14.0	525
Total Developed Rec. Sites	All	454	2406	604	76.5	3166
Highway 89A	Driving	—	—	—	54.4	—
Roadside Parking	All	1026	3078	1026	4.2	3078
Total Including Roadside Parking	All	1480	5484	1630	135.1	6244

\* Slide Rock State Park contains a total of 54 acres. Developed sites total 10.2 acres.

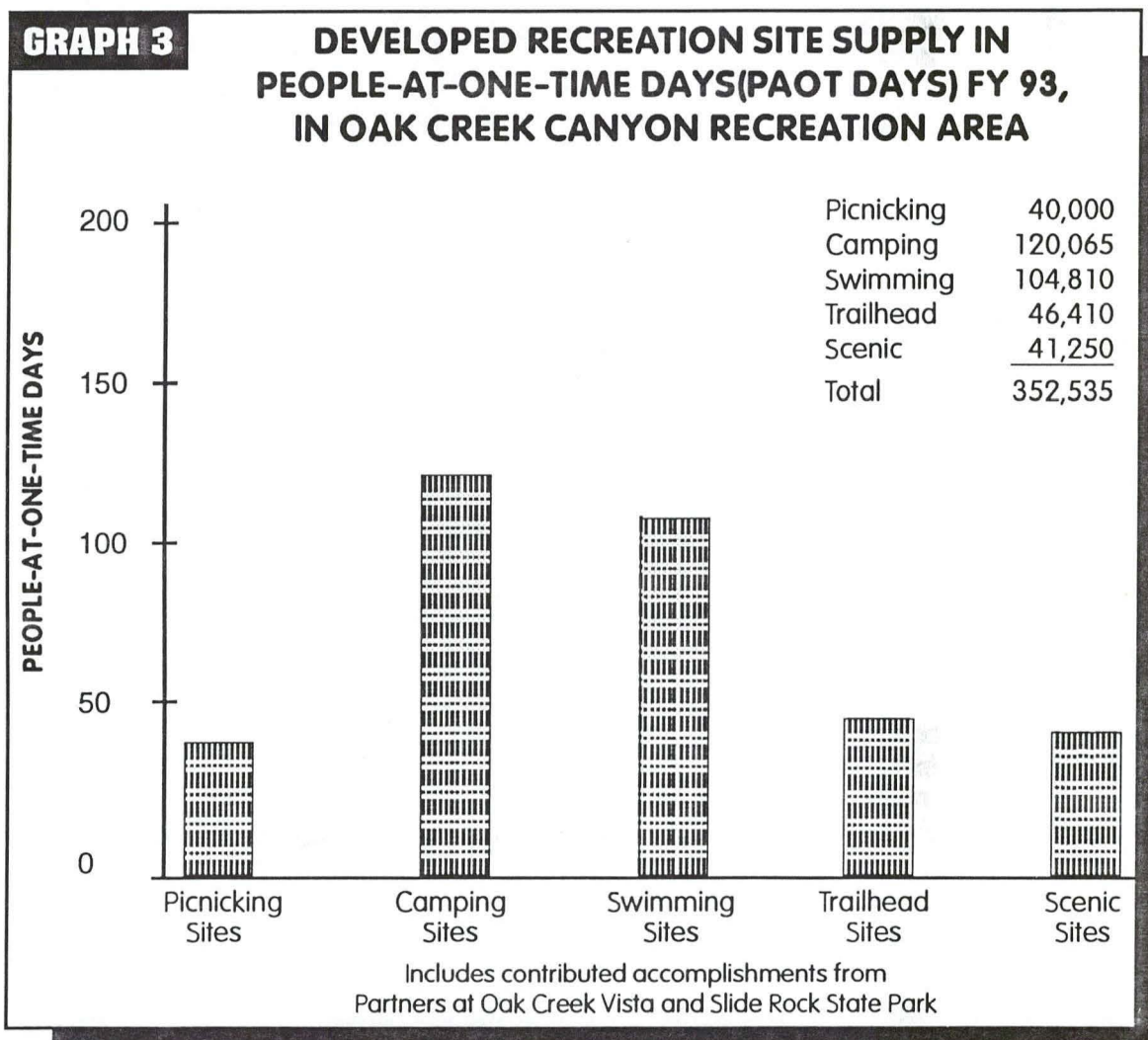
Highway 89A when looked at from a recreation standpoint is a developed area and serves a recreation purpose. It takes up 54.5 acres of the total 135.2 acres allocated to development on public land in the Oak Creek Canyon Recreation area. The highway should be looked at as part of the recreation development in the Canyon. It occupies over 40% of the developed publicly



owned acreage in the Oak Creek Canyon Recreation Area. The Recreation Area has a "reasonable" capacity of 1480 cars and 5500 people using highway parking and recreation sites at any given time.

### Developed Recreation Site Supply to be Offered in FY 93

The amount of supply offered to recreationists depends on targets assigned to the District in PAOT days. The targets are assigned based on the budget. If the entrance gate isn't opened the supply isn't offered.



The number of PAOT's offered has not varied tremendously over the years for several reasons. The Forest Plan requires that campgrounds stay open a specified length of time and the Forest Recreation budget has always been adjusted to allow enough money in the operation and maintenance budget to do what the plan says.

Graph 3 lists only the developed sites that we have been assigned targets for. It does not include highway parking.

### Recreation Resource Allocation by Developed Site Type

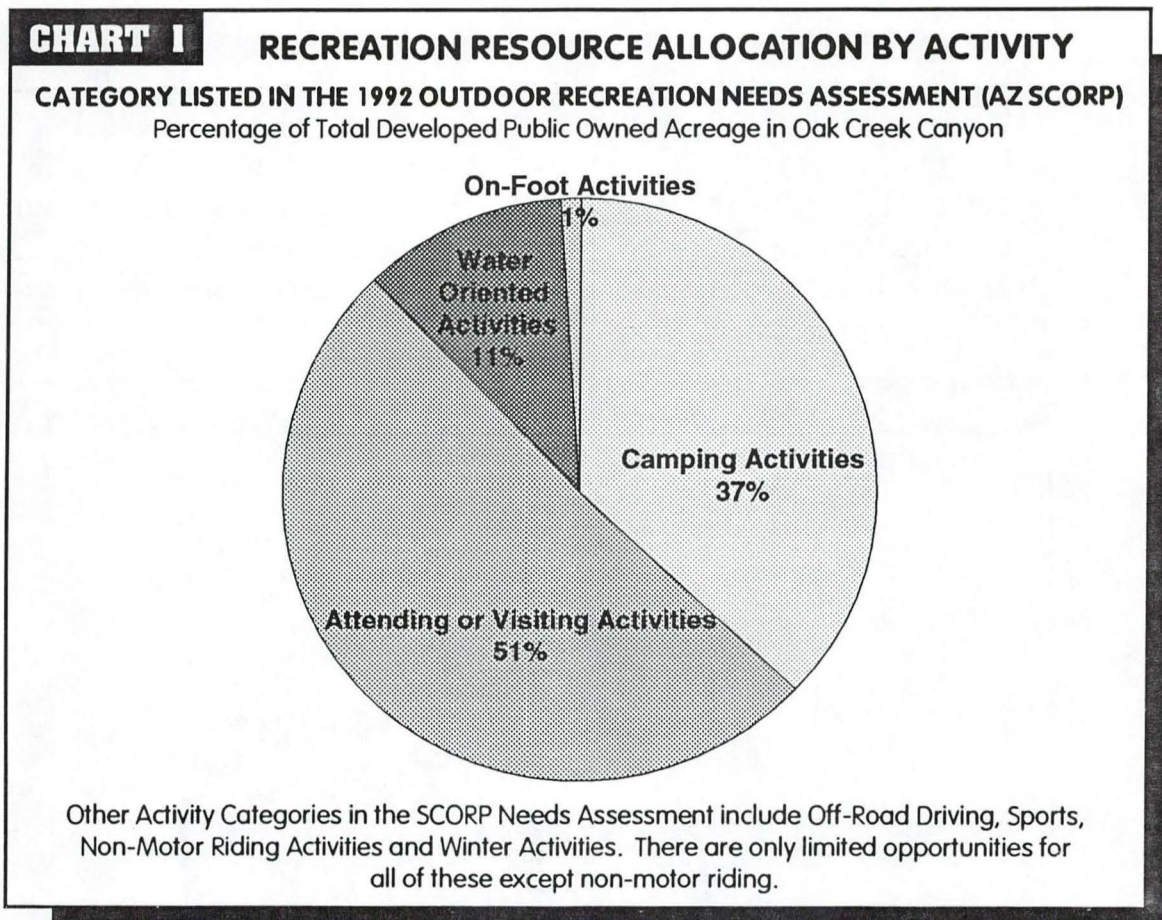


Chart 1 illustrates the allocation of developed site supply to various types of activities. The only non-National Forest Land this includes is Slide Rock State Park (developed portion only—10.2 Ac. of the total 54 acre Park) and business parking along US 89A which is open to the public. This chart separates out highway



acreage and roadside parking. acreage. It illustrates the appallingly small acreage dedicated to trailheads and picnicking and the large acreage dedicated to the highway and camping. The small acreage dedicated to roadside parking provides 1026 parking spots but it has a direct affect on dispersed acres not listed in this chart.

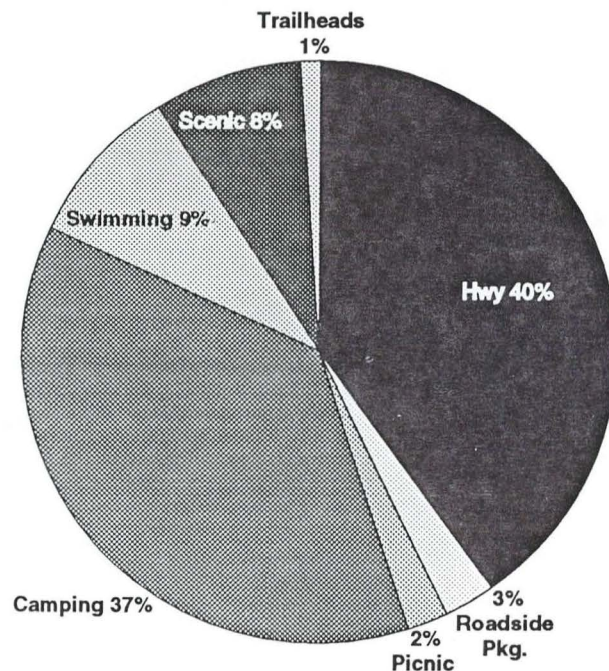
### Recreation Resource Allocation by Activity Category in SCORP

The "1992 Outdoor Recreation Needs Assessment" (SCORP) lists eight activity categories. Four of the categories are currently available in Oak Creek Canyon. They include: Camping activities, water oriented activities, on foot activities, and attending or visiting activities (see Table in Appendix). Four of the activities are currently not available or are very limited in the Canyon. They include: Off road driving, sports activities, winter activities, and non-motor riding activities. The only one of those that could be accommodated in the Oak Creek Recreation Area is non-motor riding activities—this includes bicycling, mountain biking in a natural setting, and horseback riding.

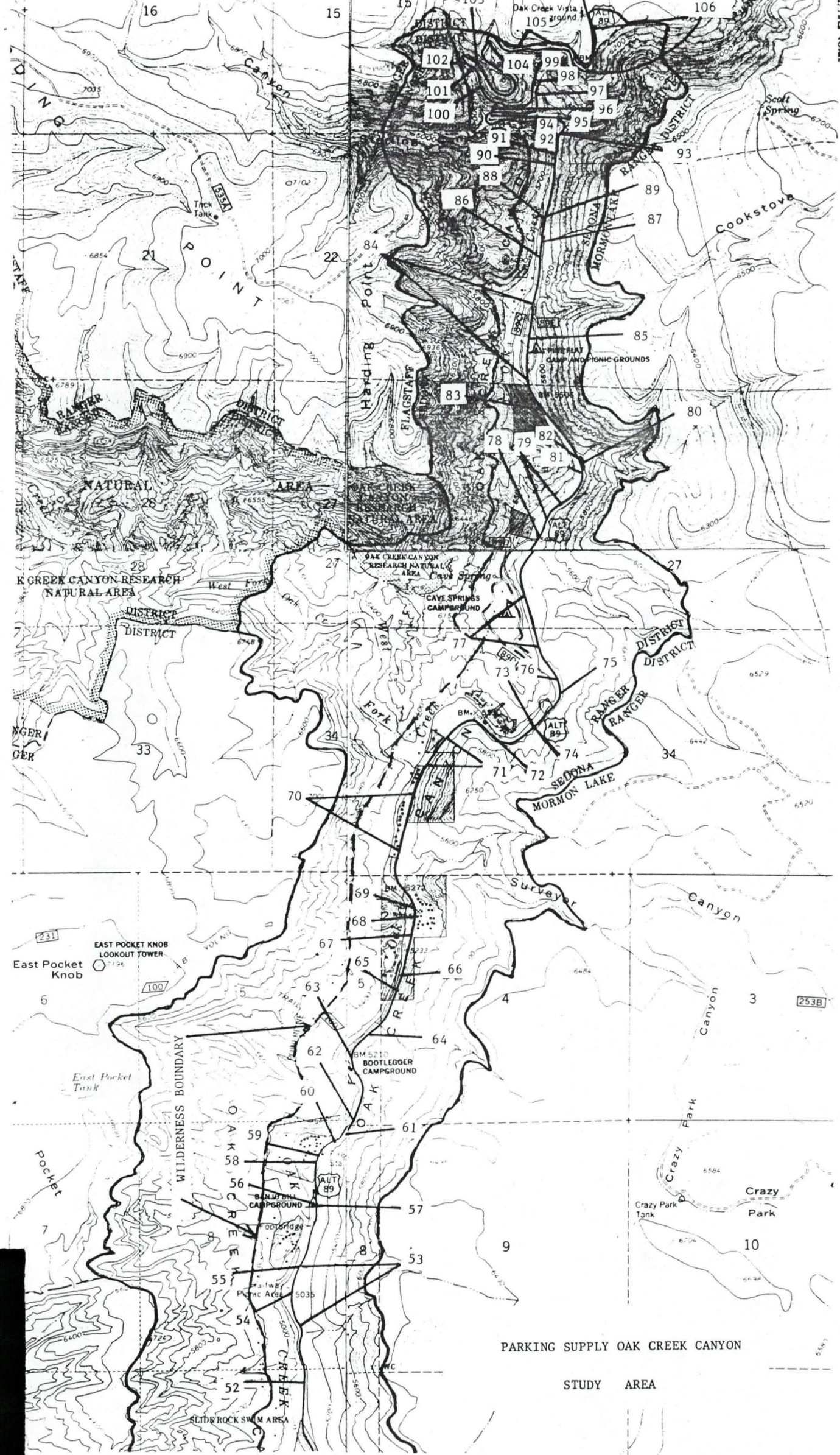
**CHART 2**

#### RECREATION RESOURCE ALLOCATION BY SITE TYPE

Percentage of Total Developed Public Owned Acreage in Oak Creek Canyon.







PARKING SUPPLY OAK CREEK CANYON

STUDY AREA



TABLE 11 ROADSIDE PARKING SUPPLY HWY. 89A OAK CREEK CANYON\*

PKG.							# VEHICLE
SITE #	MILE MARKER	SIDE	DIMENSIONS	AC.	ACTIVITY	VICINITY	CAPACITY
1	375.1	W	136'X17'	.05	Scenic	City Lim.	13
2	345.6	E	242'X20'	.11	"	O.Ck.Sign	27
3	375.8	E	--	.004	"	--	1
4	376.0	W	--	.004	"	--	1
5	376.0	W	--	.004	"	--	1
6	376.0	E	52'X15'	.02	"	--	4
7	376.0	W	145'X26'	.09	Trail	SteamB.Rk	16
8	376.0	W	--	.004	Scenic	--	1
9	376.1	W	Tri.129X168	--	Scenic	Midgely	other list
10	376.5	E	--	.004	Scenic	--	2
11	376.5	E	--	.004	"	--	2
12	376.5	W	124'X15'	.04	Swim-Scen	--	10
13	376.5	W	--	.004	" "	--	2
14	276.5	E	Tri.209X28	.07	Swim	Grasshopp	
	:	:	:	:	:	Overflow	13
15	376.5	E	--	--	Swim	Grasshopp	other list
16	376.7	E	157'X10'	.04	Scenic	--	8
17	376.8	W	Tri.124X31	.05	Trail	--	10
18	376.8	E	135'X8'	.02	"	--	7
19	377.0	W	194'X10'	.04	"	Allen Tr.	10
20	377.0	E	90'X10'	.02	"	:	5
21	377.4	W	104'X12'	.03	Scenic	:	5
22	377.5	W	133'X7'	.02	"	:	7
23	377.9	W	--	.004	"	:	1
24	377.9	W	--	.004	"	:	1
25	378.0	W	163'X8'	.03	Swim-Scen	:	8
26	378.0	E	142'X10'	.03	Swim	:	7
27	378.1	W	87'X8'	.02	Picnic	S.IndianG	4
28	378.1	E	--	.004	"	--	3
29	378.2	W	174'X57'	.23	"	Indian G.	28
30	378.2	E	123'X10'	.03	Business	"	6
	:	:	200'X72'	.33	"	:	40
31	378.2	W	33'X221'	.17	"	Garlands	20
32	378.4	E	176'X7'	.03	Scenic	:	9
33	378.7	E	95'X10'	.02	Swim-Fish	Rockfall	
	:	:	:	:	:	-Area	5
34	378.8	W	176'X47'	.19	Business	Twim Oaks	
	:	:	:	:	:	Cafe	23
35	378.9	E	--	.02	"	Motel	5
36	379.0	W	163'X10'	.04	Swim	:	8
37	379.1	E	73'X7'	.01	"	:	4
38	379.3	E	2-167'X10'	.04	"	:	10

SUB TOTAL 1.83 AC. 327 SPACES

\*Based on Standard 9'X20' Parking Spot. Where measured width of parking area is less than 15 ft., Visitors park parallel to the roadway. Therefore length is divided by 20 ft. to determine # of parking Spots.

CONTINUED

TABLE 11 ROADSIDE PARKING SUPPLY HWY. 89A OAK CREEK CANYON

PKG. SITE #	:	MILE MARKER	:	SIDE	:	DIMENSIONS	:	AC.	:	ACTIVITY	:	VICINITY	:	# VEHICLE CAPACITY
39	:	379.3	:	E	:	--	:	.004	:	Swim	:	--	:	1
40	:	379.3	:	E	:	--	:	.01	:	Swim-Pic	:	Near Enci	:	3
41	:	379.3	:	W	:	84'X67'	:	--	:	Picnic	:	Encinoso	:	Other List
42	:	379.4	:	W	:	222'X8'	:	.04	:	Trail	:	N.Wilson	:	11
43	:	379.6	:	E	:	162'X18'	:	.07	:	Swim	:		:	16
44	:	379.8	:	E	:	345'X8'	:	.06	:	Swim-Fish	:	Mission R	:	20
45	:	380.0	:	E	:	--	:	.004	:	" "	:		:	1
46	:	380.0	:	E	:	--	:	.004	:	" "	:		:	1
47	:	380.2	:	E	:	134'X8'	:	.02	:	" "	:		:	7
48	:	380.3	:	E	:	295'X6'	:	.04	:	" "	:		:	15
	:		:		:	247'X27'	:	.15	:	" "	:		:	19
49	:	380.7	:	E	:	166'X8'	:	.03	:	" "	:		:	8
50	:	380.8	:	E	:	--	:	.08	:	Swim	:		:	2
51	:	381.0	:	E	:	107'X7'	:	.02	:	Swim	:	Slide Rk	:	5
52	:	381.7	:	W	:	137'X10'	:	.03	:	" "	:	" "	:	7
53	:	382.0	:	E	:	1360'X8'	:	.25	:	" "	:	" "	:	68
54	:	382.0	:	W	:	--	:	.02	:	Swim-Fish	:	Near Half	:	4
55	:	382.1	:	W	:	--	:	.004	:	" "	:	N of Half	:	1
56	:	382.3	:	W	:	411'X8'	:	.08	:	Swim-Camp	:	Near Banj	:	21
57	:	382.3	:	E	:	125'X8'	:	.02	:	Swim-Camp	:	" "	:	6
58	:	382.4	:	W	:	--	:	.008	:	" "	:	N of Banj	:	2
59	:	382.4	:	W	:	--	:	.004	:	" "	:	" "	:	1
60	:	382.6	:	W	:	150'X8'	:	.03	:	Business	:	Junipine	:	7
61	:	382.7	:	E	:	220X10"	:	.05	:	Swim-Fish	:	N. "	:	11
62	:	383.0	:	W	:	--	:	.02	:	" "	:	--	:	5
63	:	383.1	:	W	:	--	:	.008	:	Camp	:	Near Boot	:	2
64	:	383.3	:	E	:	--	:	.008	:	Swim-Fish	:	--	:	2
65	:	383.5	:	W	:	125'X8'	:	.02	:	" "	:	--	:	6
66	:	383.6	:	E	:	140'X8'	:	.03	:	" "	:	Rockfall	:	
	:		:		:		:		:		:	-Hazard	:	7
67	:	383.8	:	W	:	276'X8'	:	.05	:	" "	:	--	:	14
68	:	383.8	:	W	:	65'X7'	:	.01	:	" "	:	--	:	3
69	:	383.8	:	W	:	55'X45'	:	.06	:	" "	:	Near Hoel	:	7
70	:	384.5	:	W	:	--	:	.02	:	Scenic	:		:	5
71	:	384.8	:	W	:	40 spots	:		:	Trail	:	W.Fk O.Ck:To	:	Be Closed
72	:	384.9	:	E	:	--	:	.01	:	" "	:	N.of CofC	:	3
73	:	385.0	:	W	:	70'X20'	:	.03	:	Swim-Fish	:	--	:	8
74	:	385.0	:	E	:	--	:	.01	:	" "	:	--	:	3
75	:	385.0	:	E	:	--	:	.02	:	" "	:	L.Wilhelm	:	5
76	:	385.1	:	W	:	--	:	.02	:	" "	:	--	:	5
77	:	385.9	:	W	:	1125'X12'	:	.31	:	" "	:	Near Cave	:	
	:		:		:		:		:		:	-Spr.	:	56
78	:	385.9	:	W	:	--	:	.01	:	Camp	:	Near C Sp	:	3
SUB TOTAL								1.79 Acres				371 Spaces		



[illegible]

CONTINUED  
TABLE 11 ROADSIDE PARKING SUPPLY HWY. 89A OAK CREEK CANYON

PKG.	:	:	:	:	:	:	:	# VEHICLE							
SITE #	:	MILE MARKER	:	SIDE	:	DIMENSIONS	:	AC.	:	ACTIVITY	:	VICINITY	:	CAPACITY	
39	:	379.3	:	E	:	--	:	.004	:	Swim	:	--	:	1	
40	:	379.3	:	E	:	--	:	.01	:	Swim-Pic	:	Near Enci	:	3	
41	:	379.3	:	W	:	84'X67'	:	--	:	Picnic	:	Encinoso	:	Other List	
42	:	379.4	:	W	:	222'X8'	:	.04	:	Trail	:	N.Wilson	:	11	
43	:	379.6	:	E	:	162'X18'	:	.07	:	Swim	:		:	16	
44	:	379.8	:	E	:	345'X8'	:	.06	:	Swim-Fish	:	Mission R	:	20	
45	:	380.0	:	E	:	--	:	.004	:	"	:	"	:	1	
46	:	380.0	:	E	:	--	:	.004	:	"	:	"	:	1	
47	:	380.2	:	E	:	134'X8'	:	.02	:	"	:	"	:	7	
48	:	380.3	:	E	:	295'X6'	:	.04	:	"	:	"	:	15	
	:		:		:	247'X27'	:	.15	:	"	:	"	:	19	
49	:	380.7	:	E	:	166'X8'	:	.03	:	"	:	"	:	8	
50	:	380.8	:	E	:	--	:	.08	:	Swim	:		:	2	
51	:	381.0	:	E	:	107'X7'	:	.02	:	Swim	:	Slide Rk	:	5	
52	:	381.7	:	W	:	137'X10'	:	.03	:	"	:	"	:	7	
53	:	382.0	:	E	:	1360'X8'	:	.25	:	"	:	"	:	68	
54	:	382.0	:	W	:	--	:	.02	:	Swim-Fish	:	Near Half	:	4	
55	:	382.1	:	W	:	--	:	.004	:	"	:	"	:	1	
56	:	382.3	:	W	:	411'X8'	:	.08	:	Swim-Camp	:	Near Banj	:	21	
57	:	382.3	:	E	:	125'X8'	:	.02	:	Swim-Camp	:	"	:	6	
58	:	382.4	:	W	:	--	:	.008	:	"	:	"	:	2	
59	:	382.4	:	W	:	--	:	.004	:	"	:	"	:	1	
60	:	382.6	:	W	:	150'X8'	:	.03	:	Business	:	Junipine	:	7	
61	:	382.7	:	E	:	220X10"	:	.05	:	Swim-Fish	:	N.	:	11	
62	:	383.0	:	W	:	--	:	.02	:	"	:	"	:	5	
63	:	383.1	:	W	:	--	:	.008	:	Camp	:	Near Boot	:	2	
64	:	383.3	:	E	:	--	:	.008	:	Swim-Fish	:	--	:	2	
65	:	383.5	:	W	:	125'X8'	:	.02	:	"	:	"	:	6	
66	:	383.6	:	E	:	140'X8'	:	.03	:	"	:	"	:		
	:		:		:		:		:		:	-Hazard	:	7	
67	:	383.8	:	W	:	276'X8'	:	.05	:	"	:	"	:	14	
68	:	383.8	:	W	:	65'X7'	:	.01	:	"	:	"	:	3	
69	:	383.8	:	W	:	55'X45'	:	.06	:	"	:	"	:		
70	:	384.5	:	W	:	--	:	.02	:	Scenic	:		:	5	
71	:	384.8	:	W	:	40 spots	:		:	Trail	:	W.Fk O.Ck	:	To Be Closed	
72	:	384.9	:	E	:	--	:	.01	:	"	:	N.of CofC	:	3	
73	:	385.0	:	W	:	70'X20'	:	.03	:	Swim-Fish	:	--	:	8	
74	:	385.0	:	E	:	--	:	.01	:	"	:	"	:	3	
75	:	385.0	:	E	:	--	:	.02	:	"	:	"	:	5	
76	:	385.1	:	W	:	--	:	.02	:	"	:	"	:	5	
77	:	385.9	:	W	:	1125'X12'	:	.31	:	"	:	"	:		
	:		:		:		:		:		:	-Spr.	:	56	
78	:	385.9	:	W	:	--	:	.01	:	Camp	:	Near C Sp	:	3	
SUB TOTAL														1.79 Acres	371 Spaces



Table 10  
Overall Demand for Outdoor  
Recreation Activity by Rank

RANKED ACTIVITIES		AVERAGE INTEREST*
1.	Visiting outstanding scenic area	3.81
2.	Visiting historical place	3.56
3.	Visiting zoo/botanical garden	3.56
4.	Picnicking	3.33
5.	Walking (excluding trail hiking)	3.33
6.	Visiting archaeological site	3.29
7.	Attending outdoor performance	3.23
8.	Tent camping	3.21
9.	Fishing - natural setting	3.15
10.	Trail-hiking (day-hiking)	3.07
11.	Swimming in lakes/rivers	3.06
12.	Attending outdoor sport event	3.00
13.	Recreation vehicle camping	2.93
14.	Bicycling	2.89
15.	Using a park playground	2.88
16.	Sledding/general snow play	2.82
17.	Motor boating	2.79
18.	Horseback riding	2.60
19.	Tubing	2.59
20.	Softball/baseball	2.57
21.	Backpacking	2.56
22.	Swimming in public pools	2.52
23.	Rafting and kayaking	2.50
24.	Football/soccer	2.49
25.	Canoeing	2.47
26.	Mountain biking (natural setting)	2.45
27.	Nature study/birdwatching	2.42
28.	Water-skiing/jetskiing	2.42
29.	Fishing - urban setting	2.40
30.	Basketball	2.38
31.	Sailing/windsurfing	2.33
32.	Downhill skiing	2.33
33.	4-wheel drive vehicles	2.32
34.	Tennis	2.31
35.	Target shooting/archery	2.28
36.	Jogging/running	2.23
37.	Golfing	2.22
38.	Cross-country skiing	2.21
39.	Hunting (all types)	2.17
40.	Rock climbing	2.04
41.	Snowmobiling	1.96
42.	Motorcycle or ATV driving	1.91

The bottom five ranked activities were motorcycle or ATV driving (1.91), snowmobiling (1.96), and rock climbing (2.04), hunting (all types) (2.17) and cross-country skiing (2.21).



### Latent Demand for Outdoor Recreation Activity

The next series of items attempted to determine the unmet need or latent demand for outdoor recreation activities of Arizona residents. The process to determine latent demand was adapted from the *Tennessee Statewide Recreation Study (1983)* and the *Public Opinions and Attitudes on Outdoor Recreation in California Study (1987)*. The respondents were asked to reconsider the list of 42 outdoor recreation activities from the previous question and select up to 10 activities that they would like to do more often, or would like to try. From these 10 activities, respondents were asked to choose the top 5 activities and rank them in order, beginning with the most important. These rankings were weighted so that the most important activity received a weight of 5, the second most important a weight of 4 and so on. The unranked activities received a weight of zero. The weights for each activity were summed across the entire sample (n=683) to create an overall latent demand index score.

Table 11 provides the weighted overall index score representing the latent demand for each of the 42 outdoor recreation activities by category. The distribution of scores ranged from a high of 845 (fishing-natural setting) to a low of 56 (snowmobiling). The category of "Camping Activities" had the highest overall average of index scores, followed by "Attending or Visiting Activities" and then by "Fish, Hunting/Shooting Activities." The category of "Off-Highway Driving Activities" had the lowest overall results followed by "Water-Oriented Activities."

Table 12 presents the 42 outdoor recreation activities by rank based upon their individual activity index scores. This table resulted in a wide distribution of latent demand for the 42 outdoor recreation activities of Arizona residents. The top five ranked activities were fishing-natural setting (845), picnicking (642), visiting historic place (554), tent camping (537) and visiting outstanding scenic area (273). The bottom five ranked activities were snowmobiling (56), sailing windsurfing (72), football soccer (74), rock climbing (76) and basketball (80).

**Table 11**  
Latent Demand for Outdoor  
Recreation Activity by Category

CATEGORY/ACTIVITY	INDEX SCORE
<b>Attending or Visiting Activities</b>	
Picnicking	642 -
Using a park playground	279
Attending outdoor sport event	188
Visiting historical place	554 -
Visiting archaeological site	379 -
Visiting zoo/botanical garden	442 -
Attending outdoor performance	261
Visiting outstanding scenic area	473 -
<b>On-Foot Activities</b>	
Walking (excluding trail hiking)	467 -
Trail-hiking (day-hiking)	399 -
Backpacking	225
Jogging/running	122
Rock climbing	76
Nature study/birdwatching	123
<b>Non-Motor Riding Activities</b>	
Bicycling	318 -
Mountain biking (natural setting)	154
Horseback riding	355 -
<b>Off-Highway Driving Activities</b>	
Motorcycle or ATV Driving	163
4-wheel drive vehicles	210
Snowmobiling	56
<b>Fish, Hunting/Shooting Activities</b>	
Hunting (all types)	315 -
Target shooting/archery	169
Fishing - natural setting	845 -
Fishing - urban setting	98
<b>Camping Activities</b>	
Tent camping	537 -
Recreation vehicle camping	373 -
<b>Sports Activities</b>	
Golfing	353 -
Softball/baseball	155
Tennis	140
Basketball	80
Football/soccer	74
<b>Water-Oriented Activities</b>	
Swimming in public pools	170
Swimming in lakes/ rivers	229
Rafting or kayaking	111
Canoeing	81
Water-skiing/jetskiing	177
Motor boating	235
Sailing/windsurfing	72
Tubing	113
<b>Winter Activities</b>	
Downhill skiing	293
Cross-country skiing	93
Sledding general snow play	108

**Table 12**  
Latent Demand for Outdoor  
Recreation Activity by Rank

RANKED ACTIVITIES	INDEX SCORE
1. Fishing - natural setting	845
2. Picnicking	642
3. Visiting historic place	554
4. Tent camping	537
5. Visiting outstanding scenic area	473
6. Walking	467
7. Visiting zoo/ botanical garden	442
8. Trail hiking	399
9. Visiting archeological site	379
10. Recreational vehicle camping	373
11. Horseback riding	355
12. Golfing	353
13. Bicycling	318
14. Hunting	315
15. Downhill skiing	293
16. Using a park playground	279
17. Attending outdoor performance	261
18. Motor boating	235
19. Swimming in lakes/ rivers	229
20. Backpacking	225
21. 4-wheel drive vehicles	210
22. Outdoor sport event	188
23. Water-skiing/ jetskiing	177
24. Target shooting/ archery	169
25. Swimming in public pools	170
26. Motorcycle/ ATV driving	163
27. Softball/ baseball	155
28. Mountain biking	154
29. Tennis	140
30. Nature study/ birdwatching	123
31. Jogging/ running	122
32. Tubing	113
33. Rafting or kayaking	111
34. Sledding/ general snow play	108
35. Fishing - urban setting	98
36. Cross-country skiing	93
37. Canoeing	81
38. Basketball	80
39. Rock climbing	76
40. Football/ soccer	74
41. Sailing/ windsurfing	72
42. Snowmobiling	56



### Barriers to Outdoor Recreation Activity

The implemented of barriers was adapted from the *Missouri Outdoor Recreation Demand Study (1989)* and the *Minnesota Outdoor Recreation Study (1990)*. In this study respondents were asked to identify the top 5 activities that they would like to try or do more often. The respondents then were asked to report the main reasons or barriers for not participating in the selected outdoor recreation activities. Residents were directed to select from a list of 16 commonly cited barriers. Table 13 presents the total frequency for each of the 16 listed barriers. "Not enough time" was the most common barrier mentioned by 28.1 percent of the respondents, followed by "Recreation areas too far away" (13.8%), and "Don't know where to go" (12.9%). "Lack of diverse activities for family" was reported least often (0.9%), along with "Polluted places" (1.1%), and "Unsuitable climate" (1.3%).

Table 14 presents the three most common barriers for each of the 42 recreation activities. These barriers represent the major obstacles to the realization of latent demand for each activity. The barrier of "Recreation areas too far away" was reported most often as a constraint for the categories of Attending or Visiting Activities, Water-Oriented Activities, and Winter Activities. The barrier of "Don't know where to go" was most often reported as a constraint for categories of On-Foot Activities and Fish, Hunting/Shooting Activities. The barrier of "Too crowded" was mentioned as a constraint for the categories of Camping Activities, Sports Activities, and Water-Oriented Activities. The barrier of "Too expensive" was reported as a constraint for the categories of Attending or Visiting Activities and Fish, Hunting/Shooting Activities. The barrier of "Don't have right equipment" was mentioned as a constraint for the categories of Water-Oriented Activities and Off-Highway Driving Activities.

### Public Funding Priorities for Outdoor Recreation Activity

The procedure to determine resident's funding priorities for public state and local governments was adapted from the *Tennessee Statewide Recreation Study (1983)*. The respondents were asked to consider again the original list of 42 outdoor recreation activities from the previous questions, and select up to 10 activities that should receive



Table 13  
Barriers to Outdoor Recreation Activity by Category

BARRIERS	COUNT	FREQUENCY IN PERCENTAGES
Not enough time	945	28.1
Recreation areas too far away	465	13.8
Don't know where to go	435	12.9
Too crowded	300	8.9
Too expensive	292	8.7
Don't have right equipment	158	4.7
No companions	131	3.9
Unsafe places	124	3.7
Poorly maintained areas	111	3.3
Unsuitable services or facilities	92	2.7
Personal health reasons	89	2.6
Lack transportation	57	1.7
Don't have the skill or training	53	1.6
Unsuitable climate	44	1.3
Polluted places	38	1.1
Lack of diverse activities for family	30	0.9

**Table 14**  
**Ranked Participation Barriers for Outdoor Recreation Activity by Category**

CATEGORY/ACTIVITY	INDEX SCORE	BARRIER CODES* RANKED BY FREQUENCY		
		FIRST	SECOND	THIRD
<b>Attending or Visiting Activities</b>				
Picnicking	642	3	4	1
Using a park playground	279	3	4	1,9
Attending outdoor sport event	188	4	3	1
Visiting historical place	554	3	2	1
Visiting archaeological site	379	2	3	1
Visiting zoo/botanical garden	442	3	1	4
Attending outdoor performance	261	2	4	3
Visiting outstanding scenic area	473	3	2	1
<b>On-Foot Activities</b>				
Walking (excluding trail hiking)	467	3	9	2
Trail-hiking (day-hiking)	399	3	2	1,5
Backpacking	225	3	1	2
Jogging/running	122	3	2	9,12
Rock climbing	76	2	3	15
Nature study/birdwatching	123	2	3	1
<b>Non-Motor Riding Activities</b>				
Bicycling	318	9	3	7
Mountain biking (natural setting)	154	2	3	14
Horseback riding	355	4	2	3
<b>Off-Highway Driving Activities</b>				
Motorcycle or ATV Driving	163	1	14	3
4-wheel drive vehicles	210	3	2	1
Snowmobiling	56	14	2	4,13
<b>Fish, Hunting/Shooting Activities</b>				
Hunting (all types)	315	3	4	2
Target shooting/archery	169	2	3	4
Fishing - natural setting	845	3	1	2
Fishing - urban setting	98	6	3	2,4
<b>Camping Activities</b>				
Tent camping	537	3	6	1
Recreation vehicle camping	373	3	4	6
<b>Sports Activities</b>				
Golfing	353	4	3	6
Softball/baseball	155	3	6	1,2
Tennis	140	3	6	2
Basketball	80	6	10	7,3
Football/soccer	74	4	3	6,10
<b>Water-Oriented Activities</b>				
Swimming in public pools	170	6	3	1
Swimming in lakes/ rivers	229	1	6	2,3
Rafting or kayaking	111	2	4	14
Canoeing	81	3	1,2	14
Water-skiing/jetskiing	177	14	3,6	14
Motor boating	235	6	3	14
Sailing/windsurfing	72	3	15	1,6,14
Tubing	113	1	3	6
<b>Winter Activities</b>				
Downhill skiing	293	4	*	3
Cross-country skiing	93	1	3,15	14
Sledding/general snow play	108	1	3	2

### Coded List of Barriers\*

BARRIER	CODE
Recreation areas too far away	1
Don't know where to go	2
Not enough time	3
Too expensive	4
No companions	5
Too crowded	6
Poorly maintained areas	7
Polluted places	8
Unsafe places	9
Unsuitable services or facilities	10
Lack of diverse activities for family	11
Personal health reasons	12
Lack transportation	13
Don't have right equipment	14
Don't have skill or training	15
Unsuitable Climate	16



Table 9 reports the level of interest in each of the 42 outdoor recreation activities. In general, residents reported moderate to high degrees of interest. The average activity interest scores ranged from 1.91 to 3.81 out of a possible 5 point scale. As the table indicates, the highest overall level of interest (overall demand) for outdoor recreation activities was the category of "Attending or Visiting Activities" (3.33). The most important activities in this category, in order, were: visiting outstanding scenic areas (3.81), visiting historic places (3.56), visiting zoo/botanical gardens (3.56), picnicking (3.33), and visiting archeological sites (3.29). The next highest category of overall interest was the category of "Camping Activities" (3.07) where the activities of tent camping (3.21) and recreation vehicle camping (2.93) both exhibited relatively strong interest. The third highest category was the "Non-motor Riding Activities" (2.65). The activities of bicycling (2.89), horseback riding (2.6) and mountain biking-natural setting (2.45) were activities in this category. Other individual activities of note were fishing-natural setting (3.15), followed by swimming in lakes/rivers (3.06) and attending outdoor sports event (3.0).

Table 9 also indicates limited or low level of overall interest for some categories and activities by Arizona residents. The "Off-Highway Driving Activities" category received the lowest average scores of the 9 category groupings. The activities of motorcycle or ATV driving (1.91) and snowmobiling (1.96) exhibited the lowest scores. However, the activity of 4-wheel drive vehicles (2.32) did receive a more moderate overall interest score by residents. Other individual outdoor recreation activities that seemed to have limited statewide demand were rock climbing (2.04), followed by hunting-all types (2.17), cross-country skiing (2.21), golfing (2.22), and jogging/running (2.23).

Table 10 presents the 42 outdoor recreation activities by rank based on the individual average activity interest scores. A wide distribution of overall demand for outdoor recreation activity resulted for the 42 outdoor recreation activities. The top five ranked activities were visiting outstanding scenic area (3.81), visiting historical place (3.56), picnicking (3.33) and walking/reveluding trail hiking (3.33).



**Table 9**  
**Overall Demand for Outdoor Recreation Activity by Category**

CATEGORY/ ACTIVITY	PERCENTAGES					AVERAGE INTEREST*
	NO INTEREST	SLIGHT INTEREST	MODERATE INTEREST	HIGH INTEREST	OF UTMOST INTEREST	
<b>Attending or Visiting Activities</b>						<b>3.33</b>
Picnicking	3.5	15.4	35.3	36.0	9.8	3.33 -
Using a park playground	16.8	22.0	25.7	26.9	8.7	2.88
Attending outdoor sport event	11.8	19.4	35.1	24.9	8.8	3.00 -
Visiting historical place	2.6	10.1	32.0	39.4	15.9	3.56 -
Visiting archaeological site	6.7	17.8	29.1	32.5	13.9	3.29
Visiting zoo/botanical garden	2.7	10.7	33.2	34.8	18.5	3.56 -
Attending outdoor performance	5.7	18.0	34.8	30.3	11.2	3.23 -
Visiting outstanding scenic area	1.2	6.7	24.3	45.0	22.7	3.81 -
<b>On-Foot Activities</b>						<b>2.61</b>
Walking (excluding trail hiking)	7.7	14.2	30.8	32.7	14.6	3.33 -
Trail-hiking (day-hiking)	16.7	16.8	24.2	27.7	14.6	3.07 -
Backpacking	29.6	23.0	19.6	17.3	10.5	2.56
Jogging/running	37.3	26.6	19.8	8.4	7.9	2.23
Rock climbing	46.5	24.6	12.4	11.2	5.2	2.04
Nature study/birdwatching	26.3	32.8	20.4	13.3	7.2	2.42
<b>Non-Motor Riding Activities</b>						<b>2.65</b>
Bicycling	20.9	18.9	24.1	22.2	13.9	2.89
Mountain biking(natural setting)	36.8	18.9	16.3	18.0	10.0	2.45
Horseback riding	30.1	21.0	20.8	15.6	12.5	2.60
<b>Off-Highway Driving Activities</b>						<b>2.06</b>
Motorcycle or ATV driving	58.5	15.9	10.0	7.0	8.6	1.91
4-wheel drive vehicles	42.6	18.8	13.9	13.5	11.2	2.32
Snowmobiling	53.1	17.9	15.0	7.6	6.4	1.96
<b>Fish, Hunting/Shooting Activities</b>						<b>2.50</b>
Hunting (all types)	51.8	13.8	11.8	11.1	11.6	2.17
Target shooting/archery	43.0	16.6	19.8	11.1	9.5	2.28
Fishing - natural setting	20.2	13.4	21.6	21.5	23.4	3.15 -
Fishing - urban setting	35.0	23.4	19.0	11.9	10.7	2.40
<b>Camping Activities</b>						<b>3.07</b>
Tent camping	19.1	13.8	19.0	23.4	24.7	3.21 -
Recreation vehicle camping	22.9	15.8	22.3	20.5	17.4	2.93
<b>Sports Activities</b>						<b>2.39</b>
Golfing	47.1	19.2	11.2	12.6	10.9	2.22
Softball/baseball	29.1	21.0	23.4	17.4	9.2	2.57
Tennis	36.9	21.1	22.0	13.6	6.4	2.31
Basketball	37.2	17.9	22.8	13.9	8.2	2.38
Football/soccer	36.2	15.6	21.1	15.9	10.2	2.49
<b>Water-Oriented Activities</b>						<b>2.59</b>
Swimming in public pools	32.9	20.4	20.1	15.4	11.2	2.52
Swimming in lakes/ rivers	17.0	15.7	26.4	23.2	15.6	3.06 -
Rafting or kayaking	32.0	20.2	23.4	14.7	9.7	2.50
Canoeing	32.9	21.8	20.1	16.5	9.8	2.47
Water-skiing/jetskiing	38.2	15.4	15.9	15.1	11.4	2.42
Motor boating	26.0	15.5	23.9	20.1	13.6	2.79
Sailing/windsurfing	36.4	23.0	20.1	12.8	7.8	2.33
Tubing	31.7	15.6	24.3	15.8	11.5	2.59
<b>Winter Activities</b>						<b>2.45</b>
Downhill skiing	45.0	14.5	15.1	12.6	12.5	2.33
Cross-country skiing	43.3	15.7	18.4	12.8	8.7	2.21
Sledding/general snow play	28.4	15.5	22.5	19.2	14.4	2.82

\* Interest scale ranged from 1 = No interest to 5 = Of utmost interest

# APPENDIX

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Map 1

Map 2

Map 3

Map 4

Table 11

S.C.O.R.P. Tables

Study Area G.I.S.

R.O.S. Class Map

Study Area Map

Roadside Parkingsupply

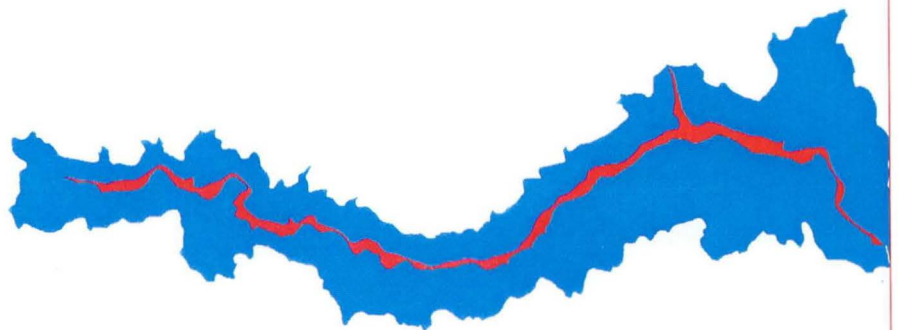
Roadside Parking Supply

Four Tables

MAP 1

STUDY AREA MAP G.I.S.

SLOPE 15% or Less---Red  
STUDY AREA-----Blue

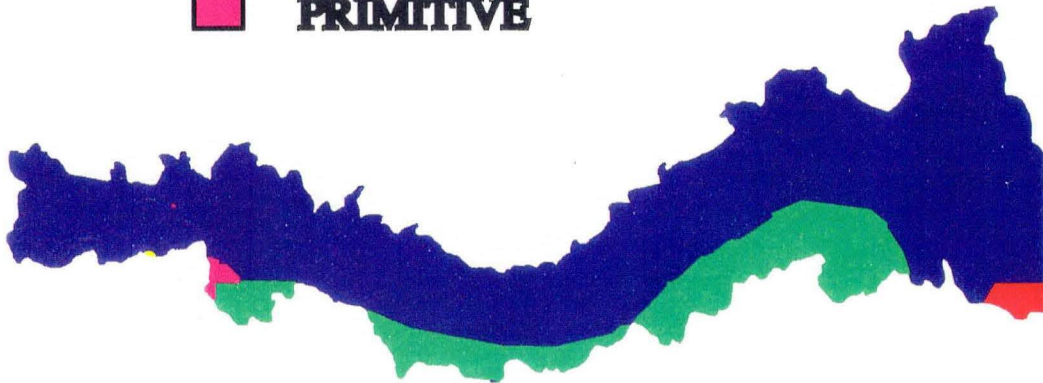
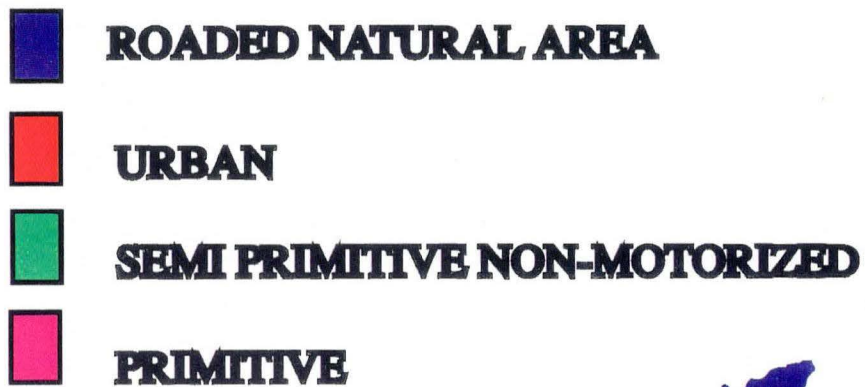




## **MAP 2**

### **RECREATION OPPORTUNITY CLASS**

### **OAK CREEK CANYON RECREATION AREA**







MAP 3  
STUDY AREA BDY.

Scale 1:126,720

1 1/2 0 1 2 3 4 5 Miles

